TRANSCRIPT OF RECORD.

624

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1886.

No. 310. 39

ALFRED B. LAWTHER, APPELLANT,

vs.

CHARLES S. HAMILTON AND TIMOTHY W. GOODRICH.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE EASTERN DISTRICT OF WISCONSIN.

FILED SEPTEMBER 22, 1884.

accession 21841

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1 UNITED STATES OF AMERICA, } ss:
Eastern District of Wisconsin, }

Circuit Court of the United States for the Eastern District of Wisconsin.

At a stated term of the circuit court of the United States for the eastern district of Wisconsin begun and held, according to law, at the city of Milwaukee, in said district, on the first Monday (being the seventh day) of January, A. D. 1884—present, the Honorable Charles E. Dyer, district judge, presiding; also present, Henry Fink, marshal; Edward Kurtz, clerk—among other the following proceedings were had, to wit:

ALFRED B. LAWTHER, Complainant,
vs.
CHARLES S. HAMILTON & TIMOTHY W. GOODRICH, Defendants. } In Equity.

Be it remembered that heretofore, to wit, on the fifth day of December, A. D. 1881, came the above-named complainant, by his solicitors, Messrs. Munday, Evarts and Adcock, and filed his bill of complaint against these defendants, as follows:

2 *Bill of Complaint.*

To the honorable the judges of the circuit court of the United States for the eastern district of Wisconsin, sitting in equity:

Alfred B. Lawther, a citizen of the State of Illinois and residing at Chicago, in said State, brings this his bill of complaint
3 against Charles S. Hamilton and Timothy W. Goodrich, who are citizens of the State of Wisconsin and residents of the eastern district thereof.

And thereupon your orator complains and says—

That heretofore and before the twenty-eighth day of September, A. D. 1875, your orator became and was the original and first inventor of certain improvements in processes of treating oleaginous seeds not known or used by others before his said invention thereof and not in public use or on sale for more than two years before his application for a patent therefor; and, being such first and original inventor, your orator made application by a proper petition to the Commissioner of Patents for letters patent upon said invention and paid the fees required by law therefor; whereupon, having complied with all the requirements of the statute in that case made and provided, certain letters patent of the United States, dated the twenty-eighth day of September, A. D. 1875, numbered 168,164, duly signed, sealed, and executed and in due form of law, were issued and delivered to your orator for the said invention; and thereby there was granted to your orator, his heirs and assigns, the full and exclusive right and liberty of making, using, and vending the said invention for the term of seventeen years from and after the date thereof, a description of said invention being contained in the specification, a copy whereof was annexed to said letters patent and made a part

thereof, as by the said letters patent, or a duly certified copy thereof here in court to be produced, will more fully appear.

And your orator attaches hereto and makes a part of his bill of complaint a copy of the specification so annexed to said letters patent, and marks the same "Exhibit A."

4 Your orator also shows that he is the sole owner of all the rights and privileges granted or intended so to be in and by said letters patent; that such rights and privileges have been and are of great pecuniary benefit and advantage to your orator, who, together with his licensees, have heretofore been in the exclusive possession and enjoyment thereof, and would now be in such exclusive possession and enjoyment but for the infringements by the defendants hereinafter complained of; that the said invention has been extensively used by the public, and that the public have generally acquiesced in your orator's said exclusive property therein, as well as in the validity of said letters patent.

Your orator further shows that the defendants, well knowing the premises, but contriving to injure your orator and to deprive him of the benefits and advantages which might and otherwise would accrue to him, did, after the date of said letters patent and previous to the commencement of this suit, at Milwaukee, in said district, and elsewhere, without the license of your orator and against his will and protest and in violation of right and in infringement of said letters patent, unlawfully and wrongfully use or cause to be used the invention and improvement patented by said letters patent, and still continue and threaten to continue so to do, in violation of your orator's rights as aforesaid.

Your orator further shows that the defendants have had notice of your orator's rights in the premises and that they were infringing thereon, and they have been requested to desist therefrom; but, notwithstanding such notice and request, the defendants still continue such unlawful acts of infringement.

All of which acts and doings of the defendants are contrary to equity and good conscience, and tend to the great loss and

5 injury of your orator, and have caused him great damage and deprived him and are still depriving him of great gains and profits which he might and otherwise would have obtained and received.

Your orator further shows, upon information and belief, that the defendants have made and realized large profits and advantages from the using of said patented invention to which your orator is entitled and whereof he prays a discovery.

To the end, therefore, that the defendants may, if they can, show why your orator should not have the relief hereby prayed and may, according to the best and utmost of their knowledge, remembrance, information, and belief, full, true, direct, and perfect answer make to all and singular the matters aforesaid (your orator hereby waiving, pursuant to the statute, the necessity of the answer of the defendants being put in under their oaths), and that as fully and particularly as if the same were here repeated and they were distinctly interrogated thereto;

That the defendants may be compelled to account for and pay over the profits by them acquired and the damages by your orator sustained from the aforesaid unlawful acts of the defendants, and that the defendants, their agents, servants, workmen, and attorneys, be perpetually enjoined from directly or indirectly making or causing to be made, using or causing to be used, vending or causing to be vended, or in any way counterfeiting or imitating, the said invention or any part thereof;

Also that the defendants and the persons aforesaid be enjoined, in manner as aforesaid, provisionally and pending the suit; also that the defendants be decreed to pay the costs of this suit to be taxed, and that your orator may have such further or other relief
6 in the premises as the nature of the circumstances of this case may require and to your honors shall seem meet:

May it please your honors to grant unto your orator a writ of injunction issuing out of and under the seal af this honorable court, to be directed to the said defendants and their attorneys, solicitors, agents, and servants, commanding and restraining them and each of them as hereinbefore prayed.

May it please your honors to grant unto your orator a writ of subpœna, to be directed to the said defendants, Charles S. Hamilton and Timothy W. Goodrich, thereby commanding them at a certain time and under a certain penalty, therein to be limited, personally to appear before this honorable court and then and there to answer the premises and further to stand to, perform, and abide such order and decree therein as to your honors shall seem agreeable to equity and good conscience.

And your orator will ever pray, &c.

A. B. LAWTHER.

MUNDAY, EVARTS & ADCOCK,
Solicitors for Complainant, 68 Honore Block, Chicago, Ill.
EDWARD S. EVARTS, *Of Counsel.*

UNITED STATES OF AMERICA, }
Northern District of Illinois, } *ss:*

On this 29th day of November, A. D. 1881, before me personally appeared the above-named Alfred B. Lawther and made oath that he has read the above bill by him subscribed and knows the contents thereof, and that the same is true of his own knowledge, except as to matters which are therein stated on information
7 and belief, and as to those matters he believes it to be true.

[SEAL.] H. M. MUNDAY,
Notary Public.

EXHIBIT "A."

UNITED STATES PATENT OFFICE.

ALFRED B. LAWTHER, of Chicago, Illinois.

Improvement in Processes of Treating Oleaginous Seeds.

Specification forming part of Letters Patent No. 168,164, dated September 28, 1875; application filed March 6, 1875.

Case A.

To all whom it may concern:

Be it known that I, Alfred B. Lawther, of Chicago, in the county of Cook and State of Illinois, have invented a new and improved process for treating oleaginous seeds, of which the following is a specification:

The object of my invention is to improve the process of working flaxseed, linseed, and other oil seeds in such a manner that a greater yield of oil is obtained at a considerable saving of time and power in the running of the crushing, mixing, and pressing machines, while also a cake of superior texture is produced.

Hitherto it has been the practice to crush the oil seeds between revolving rollers, and completing the imperfect crushing by passing them under heavy stones known as edge-runners or mullers, under addition of a quantity of water, the crushed and moistened seed being then taken from the muller-stones and stirred in a heated steam-jacketed reservoir preparatory to being placed into the presses for extracting the oil.

This process has been found imperfect in regard to many points, but mainly on account of the over-grinding of portions of the seed and the husks or bran when the seeds were exposed for too
8 long a time to the action of the muller-stones, so as to form a pasty mass and produce an absorption of oil by the fine particles of bran, while, on the other hand, the under-grinding, by too short an action of the stones, rendered the presses incapable of extracting the full amount of oil from the seed.

The texture of the cake allows in one case hardly the recognition of the original material, breaking indifferently in all directions, while in the other case it contains uncrushed seeds, causing a loss of oil and of nutritious parts.

My process is intended to remedy the defects of the one at present in use, and consists mainly in conveying the oil seeds through a vertical supply-tube and feeding-roller at such degree of pressure to powerful revolving rollers that each seed is individually acted upon and the oil-cells fully crushed and disintegrated. They are then passed directly, without the aid of muller-stones, to the mixing-machine to be stirred, moistened, and heated by the admission of small jets of water or steam to the mass, and then transferred to the presses.

The oil seeds are, by my new process, first conveyed to a hopper and fluted feed-roller at the top of an upright feed-tube of the crushing-machine, by which the seeds are fed, under suitable pressure, to

revolving rollers of sufficient power, which run at a surface speed of about one hundred and fifty to two hundred feet per minute.

The pressure on the seeds in the feed-tube is necessary, as the oil seeds would otherwise not feed readily into rollers revolving under great pressure. The oil seeds are thereby compelled to pass evenly and steadily through the rollers, which have, therefore, a
9 chance to act on all of them and break the oil-cells uniformly without reducing any portion to a pasty condition. The bran is also left comparatively coarse, so that it shows the nature of the seed after pressing.

The muller-stones and their over or under grinding of any portion of the seeds are entirely done away with by this mode, which makes not only the machinery less expensive, but produces also a saving of power required in running the same. The crushed seeds are next placed in a steam-jacketed reservoir of the mixing-machine, where they are stirred, moistened, and heated by perforated revolving stirrer-arms which throw jets of water or steam into the mass so as to thoroughly permeate and mix the same. The crushed and moistened mass is then transferred to the presses for the extraction of the oil, which operation requires less power on account of the uniformity of the mass, produces a greater yield of oil, and furnishes an improved quality of oil cake or residue of open-grained flaky nature, capable of being split in regular pieces at right angles to the direction of pressure.

Having thus described my invention I claim as new and desire to secure by letters patent—

The process of crushing oleaginous seeds and extracting the oil therefrom, consisting of the following successive steps, viz: the crushing of the seeds under pressure, the moistening of the seeds by direct subjection to steam, and, finally, the expression of the oil from the seed by suitable pressure, as and for the purpose set forth.

ALFRED B. LAWTHER.

Witnesses:
JAMES WRIGHT.
CHAS. F. HILLS.

Whereupon a subpœna issued, returnable the first Monday of January next, as follows:

10 UNITED STATES OF AMERICA, } *ss:*
Eastern District of Wisconsin, }

[SEAL.] The President of the United States of America to Charles S. Hamilton and Timothy W. Goodrich, Greeting:

You are hereby commanded that you personally appear before the judges of the circuit court of the United States of America for the eastern district of Wisconsin, in our court of chancery in and for the district aforesaid, on the first Monday of January next ensuing, at Milwaukee, to answer to a bill of complaint exhibited against you in our said court by Alfred B. Lawther.

And to do further and receive what our said court shall have

considered in that behalf; and this you are not to omit under the penalty which may ensue.

This process of subpœna is directed to the marshal of this district, who is hereby commanded to serve the same upon the said Charles S. Hamilton and Timothy W. Goodrich, if to be found in his district, and due return thereof make.

Witness the Honorable Morrison R. Waite, Chief Justice of the Supreme Court of the United States, at the city of Milwaukee, in the said district, this fifth day of December, in the year of our Lord one thousand eight hundred and eighty-one, and of our Independence the one hundred and sixth.

EDWARD KURTZ, *Clerk.*

MUNDAY, EVARTS & ADCOCK,
68 *Honore Block, Chicago, Ills., Solicitors.*

It is ordered by our said court that the said Charles S. Hamilton and Timothy W. Goodrich, the defendants aforesaid, do enter their appearance in this suit in the clerk's office on or before the day and time at which this subpœna is returnable as aforesaid; otherwise the bill filed may be taken as confessed.

11 *Return to Subpœna.*

"Served on the within-named Charles S. Hamilton, at Milwaukee, by leaving a copy of this subpœna at his usual place of abode with an adult member of his family, to wit, his domestic, and on the within-named Timothy W. Goodrich, at Milwaukee, by leaving a copy of this subpœna at his usual place of abode with an adult member of his family, to wit, his son, this 5th day of December, A. D. 1881.

"HENRY FINK, *Marshal,*
"By HENRY MARSHALL, *Deputy.*"

Fees, $4.66.

December 30, 1881.—This day came Messrs. Davis, Riess & Shepard and filed their appearance as solicitors for the defendants.

February 6, 1882.—This day came the complainant, by his solicitors, and filed his stipulation in writing—"that the defendants may have an extension of twenty days wherein to file their answer."

February 14, 1882.—This day came the defendants, by their solicitors, and filed their answer as follows:

12 *Answer.*

In Circuit Court of the United States, Eastern District of Wisconsin.
In Equity.

ALFRED B. LAWTHER
vs.
CHARLES S. HAMILTON and TIMOTHY W. GOODRICH.

The joint and several answer of the defendants, Charles S. Hamilton and Timothy W. Goodrich, to the bill of complaint herein exhibited by Alfred B. Lawther, complainant.

These defendants, now and at all times hereafter, saving and reserving to themselves all manner of benefit and advantage of exception to the many errors and insufficiencies in the complainant's said bill of complaint contained, for answer thereunto, or unto so much or such parts thereof as these defendants are advised is material for them to make answer unto, each answering for himself and not one for the other, they jointly and severally answer and say that it is true as alleged that letters patent of the United States, No. 168,164, were executed and issued to the complainant, and that they purported to grant to him the exclusive right to use and vend his supposed invention, as in his bill of complaint alleged, but that said letters patent were duly issued for an original and first invention of any improvements in the processes of treating oleaginous seeds, or that the complainant was the original and first inventor of said alleged improvement or invention these defendants and each of them deny; and they further severally deny that said supposed improvement and invention in said process, or any part thereof, as set forth in the complainant's specification and claim thereof in said letters patent, is, or was at the time of his application for letters patent thereon, a novel or useful invention; and these defendants
13 specifically deny that the complainant at any time was the original and first inventor of the process of feeding or conveying the oil seeds through a vertical supply-tube and feeding-roller, and deny that said process .or step in the process of the complainant is aught else than the application of the power of gravitation, which is a natural principle in use by all men from time immemorial, and well understood since the seventeenth century of the present era, and the application and use of which, in the manner and for the purpose in said specification set forth, is not patentable; and they deny that the complainant is the original and first inventor of the process of crushing the seeds under pressure or of the process or step in the process of the complainant described as the expression of the oil from the seed by suitable pressure.

And these defendants further deny that they or either of them have or has at any time used any part of said alleged invention or of the supposed improvement described and claimed in said letters patent, except such part thereof as these defendants have purchased the right to use and have paid the royalty asked therefor, to wit, the rollers and roller-frame, one set of which and due license to use the

same as a part of said patent the defendants purchased of the complainant's agent, duly authorized to sell the same, on or about October 1st, 1881, and also excepting that further part thereof described as the jacket reservoir, which these defendants say is not novel or original with the complainant.

Further answering, these defendants allege that said letters patent are totally void because of said use and application of
14 said principle of gravitation in two essential parts of the alleged improvement patented, as set forth in said specification and claim; and they aver that the act or process of feeding the oil seeds through a vertical supply-tube and feeding-roller has been used for many years before said patent by the defendant Hamilton, at his mills at Fond du Lac and Milwaukee, in said district, and by E. W. Blatchford & Co. at Chicago, in Illinois, and by Barney, Taylor & Co. at Toledo, in Ohio; and they further aver that the so-called jacketed reservoir, as a part of the process of crushing seeds and extracting oil therefrom, has been well known to and used by all crushers of seed and manufacturers of oil from seed for many years before said patent, and particularly by the defendant Hamilton, at Fond du Lac and Milwaukee, in Wisconsin, and by E. W. Blatchford & Co. at Chicago, in Illinois, and by Barney, Taylor & Co. at Toledo, in Ohio.

Further answering, these defendants aver that said alleged invention, as to all that part thereof which relates to the moistening of seeds by direct subjection to steam, is not new, and that the complainant was not the original and first inventor thereof in this country, because, they say, one William B. Fisher, of Newark, New Jersey, invented the same long before the complainant, and on the 16th day of July, 1872, the United States duly issued to said Fisher for his said invention letters patent, numbered 129,018, wherein his said invention was named and described as an "improvement in seed-steaming apparatus," which is in substance identical with the complainant's supposed invention; and thereafter, on March 11th, 1879, said letters patent No. 129,018 were duly reissued to said Fisher as reissue No. 8615.

15 Further answering, each of these defendants severally says that as to whether the complainant is the sole owner of said letters patent by him set forth in his bill, and as to whether his supposed rights thereunder have been or are of much or any pecuniary benefit to him, and as to whether his supposed invention has been extensively used and generally acquiesced in by the public, they, the defendants, have not, and each of them has not, knowledge or information sufficient to form a belief, and they therefore leave the complainant to make proof of said allegations in his bill; and they further deny that any other matter or thing in said bill material or necessary for these defendants to make answer unto and not hereby sufficiently answered unto, confessed or avoided, traversed or denied, is true to the knowledge or belief of these defendants; all which matters and things these defendants are ready to aver, maintain, and prove as this honorable court shall direct; and so, having fully answered said bill, they humbly pray to be hence dismissed with

their reasonable costs and charges in that behalf most wrongfully sustained.

C. S. HAMILTON,
T. W. GOODRICH,
Defendants.

DAVIS, RIESS & SHEPARD,
Defendants' Solicitors,
115 *Wisconsin St., Milwaukee, Wis.*

16 February 20, 1882.—This day came the complainant, by his solicitors, and filed his replication as follows:

Replication.

Circuit Court of the United States for the Eastern District of Wisconsin. In Equity.

ALFRED B. LAWTHER
vs.
CHARLES S. HAMILTON and TIMOTHY W. GOODRICH.

This repliant, saving and reserving to himself all and all manner of advantage of exception to the manifold insufficiencies of the said answer, for replication thereunto saith that he will aver and prove his said bill to be true, certain, and sufficient in the law to be answered unto, and that the said answer of the said defendants is uncertain, untrue, and insufficient to be replied unto by this repliant without this, that any other matter or thing whatsoever in the said answer contained material or effectual in the law to be replied —, confessed, and avoided, traversed or denied is true; all which matters and things this repliant is and will be ready to aver and prove as this honorable court shall direct, and humbly prays as in and by his said bill he hath already prayed.

ALFRED B. LAWTHER,
By MUNDAY, EVARTS & ADCOCK,
His Solicitors.

17 May 25, 1882.—This day came the defendants, by their solicitors, and filed their stipulation in writing "that the time for taking complainant's proofs be extended until the fifth day of June, A. D. 1882."

May 26, 1882.—Depositions on behalf of complainant rec'd per express and filed.

October 7, 1882.—This day came the defendants, by their counsel, and, on their motion, it is ordered by the court that they have leave to amend their answer as per amendments this day filed; and it is further ordered that the replication to the answer heretofore filed stand as the replication to the answer as amended, and that the testimony already taken by the defendants stand as taken under the issue made by said amended answer; which said amendments to answer are as follows:

Amendment- to Answer.

In Circuit Court of the United States, Eastern District of Wisconsin.
In Equity.

ALFRED B. LAWTHER
v.
CHARLES S. HAMILTON & TIMOTHY W. GOODRICH.

18 The defendants, for an amendment to their answer, to be inserted therein immediately after the words "and by Barney, Taylor & Co., at Toledo, in Ohio," near the end of the seventh folio thereof, allege and show to this honorable court as follows:

And they further aver that the act or process of crushing oil seeds by rollers set vertically one over another, substantially as described and claimed by the complainant as a part of his alleged invention, has been used many years before said patent by Grove Brothers, at Philadelphia, in Pennsylvania; and by I. & C. More & Co., at Jersey City, in New Jersey; and by Jewett & Sons, at Staten Island, in New York; and by I. P. Evans & Co., at Indianapolis, Indiana, and by H. S. Clark & Co. and Wells & Co., at Mendota, Illinois; and these defendants further aver that the direct application of steam to the crushed seed, substantially as described and claimed by the complainant, was known and used before said patent by one Force, at Jersey City, in New Jersey, and by I. P. Evans & Co., at Indianapolis, Indiana.

And they also amend their answer by adding at the end of the paragraph, about the middle of folio eight, the following words: "and by I. P. Evans & Co., at Indianapolis, Indiana."

C. S. HAMILTON,
T. W. GOODRICH,
Defendants.

DAVIS, RIESS & SHEPARD,
Defendants' Solicitors, Milwaukee, Wis.

January 13, 1883.—This day came the defendants, by their counsel, and moved the court, upon affidavit filed, that the complainant be required to file further security for costs; and said motion being submitted by the counsel of the parties the court held the same under consideration.

January 15, 1883.—This day came the parties, by their counsel, and, on consideration of the motion of the defendants that the complainant be required to file further security for costs, it is
19 ordered by the court that the complainant give such further security in the sum of one hundred dollars, either by filing a bond in that amount, with surety approved by the clerk, or by making a deposit of that amount in money, as he may elect.

January 19, 1883.—$100 deposited by complainant with the clerk as additional security for costs.

April 16, 1883.—Testimony on behalf of defendants received from F. Bloodgood, Esq., & filed.

First Hearing.

April 17, 1883.—This day this cause came on to be heard upon the pleadings and proofs, and was argued by Mr. Munday for the complainant, and by Mr. Chas. E. Shepard for the defendants, and, being submitted, the court took the same under consideration.

May 8, 1883.—Ordered by the court that this cause be reargued before the full bench.

June 11, 1883.—The defendants' motion for leave to put in further proofs, on the ground of newly discovered evidence, having come on to be heard, after hearing counsel for both parties & on the affidavits filed for the motion, it is ordered by the court that the defendants have leave to amend their answer by setting up prior use of the invention by James Wright & Cornelius Kimpler, or either of them, and after such amendment and within ten days from this date, to take the testimony of said Wright and Kimpler in support of the defenses of prior use, and that complainant was not the first inventor; that the complainant have ten days thereafter for proofs in rebuttal, and the defendants shall pay the expenses of taking all said proofs for both parties, and this order is without prejudice to defendants' right to apply for leave to take the testimony of one Force, in New Jersey, to the same defenses, if they shall be so advised, reserving for future consideration the question of the allowance of a counsel fee to complainant's solicitors on account of taking such testimony.

June 29, 1883.—Depositions of C. Kimpler & James Wright on behalf of defendants filed.

And afterwards, to wit, at a stated term of said court begun and held according to law, at the city of Milwaukee, on the first Monday (being the first day) of January, A. D. 1884, and on the 120th day thereof, to wit, on the 29th day of June, A. D. 1883—present, the Hon. Thomas Drummond, circuit judge, presiding, and also the Hon. Charles E. Dyer, district judge—the following proceedings were had, to wit:

Hearing.

ALFRED B. LAWTHER
vs.
CHARLES S. HAMILTON & TIMOTHY W. GOODRICH. } In Equity.

This day came the parties, by their counsel, Messrs. Munday and Adcock appearing for the complainant, and Messrs. Shepard and Winkler for the defendants, and this cause came on to be heard upon the pleadings and proofs and was argued by said counsel, and, the hearing not being concluded, the same was adjourned until to-morrow morning.

And afterwards, to wit, on the 30th day of June, A. D. 1883—present, the Hon. Thomas Drummond, circuit judge, presiding, and the Hon. Charles E. Dyer, district judge—the following proceedings were had, to wit:

This day came the parties, by their counsel, and the hearing of this cause was resumed, and, being concluded, the court took the same under consideration, and on said hearing the following testimony was read in evidence, to wit:

Complainant's Testimony.

Circuit Court of the United States for the Eastern District of Wisconsin. In Equity.

22 ALFRED B. LAWTHER
vs.
CHARLES S. HAMILTON and TIMOTHY W. GOODRICH.

23 At Chicago, in the northern district of Illinois, on this 19th day of May, A. D. 1882, at 10 o'clock in the forenoon, before me, H. M. Munday, a notary public within and for Cook county, Illinois, residing in Chicago, in said district, at the office of Munday, Evarts & Adcock, room 68, Honore Block.

Present: John W. Munday, Esq., on the part of said complainant, and Charles E. Shepard, Esq., on the part of the defendants.

And thereupon the following proceedings were had before me in said cause, pursuant to the stipulation and notice hereunto appended:

SIDNEY MCDOUGALL, a witness on behalf of the complainant, was here produced, and, being duly sworn, testified, in answer to interrogatories propounded to him by JOHN W. MUNDAY, Esq., counsel for complainant, as follows:

Q. What is your name, residence, and occupation?

A. Sidney McDougall; Buffalo, New York; linseed-oil manufacturer.

Q. What process does your factory employ?

A. One that is called the Lawther process.

Q. What capacity is your factory?

A. We can work up 1,500 bushels of seed in a day.

Q. Please describe briefly and generally the Lawther process which you use, commencing with the whole seed.

A. The seed is first run through five iron rollers; from there it is conveyed to a heater, steam is applied to it, and then passed through the moulding-machine, and after being moulded it is put in the presses and the oil is extracted by pressure.

Q. What do the rollers do to the seed?

A. They crush it, so as to prepare it for applying steam to it.

Q. You speak about the moulding-machine; is that employed to shape the material for the press?

24 A. It is.

Q. What results do you attain by the use of this process as compared with the older methods that you know of?

A. We can make a cake that has four per cent. less of oil in it than the old way.

Q. Do you mean to say that you obtain a yield of more oil by this process?

A. That means about one pound and six-tenths of a pound more oil out of a bushel of flaxseed.

Q. In a mill of the capacity of yours, how much oil saved does that mean a day?

A. That means 320 gallons a day saved.

Q. At the present price of oil, what is that amount of oil worth?

A. About $160.00.

Cross-examination by Mr. SHEPARD:

Q. Prior to the use of the complainant's process, what process did you use for crushing the seed?

A. This is the only process that I have been interested in.

Q. What process did your partner use, if you know?

A. The old process by the grinding with muller-stones and heating or tempering the seed with water.

Q. How long have you been in the business?

A. Three years and a little over.

Q. How long has the Lawther process been used in your mill?

A. We started up the machinery in the latter part of July, 1879.

Q. What were those old muller-stones you speak of?

A. They were two large stones revolving on a sort of platform.

Q. They were similar in shape to grindstones, were they not?

A. Yes.

Q. Was any other pressure applied by the muller-stone to the seed than simply the pressure of its own weight?

A. That is all.

Q. How are these five revolving rollers set?

A. They are in a frame one above the other.

Q. An upright frame?

A. Yes.

Q. They simply rest upon each other by their own weight?

A. I should say their belts pull them down a little; by that I mean the belts add a little to the weight by pulling down.

Q. The surfaces of the rollers touch, do they not?

A. Yes.

Q. That is, they touch as they are naturally set in the frame before they are belted?

A. Yes.

Q. When the crushed seed is put in the heater how is steam applied to it?

A. The steam is allowed to enter into the seed by a perforated pipe revolving inside the heater; that is to give it the moisture. Then there is heat applied to the bottom and sides of the heater—that is to say, the heater itself is a steam-jacket.

Q. This perforated pipe by which steam is thrown into the seed is an arm revolving from a central shaft, is it not? Is an arm revolving from a shaft in the center of the heater, is it not?

A. Yes.

Q. How is the steam communicated to the perforated revolving pipe or arm?

A. By a steam-pipe through the central shaft from above.

Q. Is the moulding-machine any part of the Lawther process?

A. I don't think so; I am not sure about that. It was bought with his machinery.

Q. Do you know where the moulding-machine that you use is manufactured?

—. I understood that all the machinery came from Chicago.

Q. Is the press any part of the Lawther process?

A. I think not. It is part of the process, but it is not patented.

26 Q. Did you buy your whole outfit of machinery from Mr. Lawther?

A. It was bought through him.

Q. How much of it or what parts of it did he sell to you covered by his patent?

A. I couldn't answer that only by looking up papers that we have got.

Q. State to the best of your knowledge what parts of the entire process of reducing the seed to oil is the process of Mr. Lawther?

A. The manner of crushing the seed by the rolls and the manner of applying the steam to it.

Q. When you say you obtain by this process one and six-tenths pounds more of oil to the bushel of flaxseed, what method do you compare with the one that you use?

A. With the method by which they ground up the seed by muller-stones and used water to dampen with.

Q. Did the mullers do any grinding?

A. They ground it up finer.

Q. By that old process what was the first thing done with the natural seed?

A. It was run through iron rollers.

Q. To what particular part of the present process do you attribute the saving of oil?

A. To the manner of crushing with rolls and the applying the steam to it, leaving it in a spongy condition, whereas the use of the muller-stones glued the seed together.

Q. Was the water applied to the meal before or after it was run through the mullers?

A. Well, I have never worked in that machinery; I have only been around mills where they worked it. I should say it was applied after it had been run through the mullers, and while the meal was in the heater.

27 Q. How does the manner of crushing the seed by the Lawther process tend to save anything—by the thoroughness with which it is done, or by anything peculiar in the process?

A. Well, it crushes it, flattens the seed out; it opens the pores so that when it is put into the press it allows the oil to run out better, we think, than when run through muller-stones, which glues it up.

Q. Isn't it simply the difference of thoroughly crushing that makes the difference?

A. No. I think it is in the manner of crushing that makes the difference.

SIDNEY McDOUGALL.

Subscribed and sworn to before me this 19th day of May, 1882.

H. M. MUNDAY,
Notary Public.

ALEXANDER HARDY was then produced on behalf of the complainant, and being duly sworn was examined in chief by J. W. MUNDAY, Esq., and testified as follows:

Q. What is your name, residence, and occupation?

A. Alexander Hardy; Logansport, Indiana; manufacturer of lin seed oil.

Q. How long have you been engaged in the business of manufacturing linseed oil?

A. Fifteen years.

Q. What process are you now using in your factory?

A. I am using the Lawther process.

Q. Please describe the process you are using, briefly, beginning with the whole seed.

A. The seed is passed through a stack of five high rolls, then conveyed into a heater jacket, and there moistened by steam, taken from there, moulded into a cake, and placed into a press, then power applied, and the oil extracted.

Q. How long have you been using this process?

A. I believe it is four years this coming June.

Q. Prior to that time what process did you use?

28 A. We used what was called the old process.

Q. Please describe that old process, commencing with the whole seed.

A. The seed was passed through two iron rolls; from there it was placed under the mullers; water was applied while the meal was under the mullers. When the meal was sufficiently mulled it was then put into heaters, and when sufficient heat was applied it was put into the press and the oil extracted.

Q. What difference, if any, is there in the yield of oil between this old process and the process you are now using, which you call the Lawther process?

A. With us it has been from three to five per cent. better yield of oil with the Lawther process than with the other.

Q. About how much oil is that per bushel, Mr. Hardy, on the average?

A. It would be about a pound to the bushel of seed.

Q. I have here a model of a set of five high rolls, which I will ask the notary to mark "Complainant's Exhibit 1," and I will ask you, Mr. Hardy, whether that is a substantially correct representation of the rolls employed by you in your mill?

A. Yes, sir; it is that.

The model marked Complainant's Exhibit 1 is offered in evidence.

Q. I now show you a model of a steam-jacket heater, which the notary will mark "Complainant's Exhibit 2," and I will ask you, Mr. Hardy, whether or not that is a substantial representation of the heater employed by you in conjunction with the five high rolls at your mill?

A. Yes, sir; it is.

Q. I have here a model, which the notary will mark "Complainant's Exhibit 3," and I will ask you, Mr. Hardy, what that represents, if you know?

29 A. That represents the mullers in general use and also the mullers which we used prior to our use of Mr. Lawther's process.

The models, "Exhibits 2 and 3," are now offered in evidence.

Cross-examination by Mr. SHEPARD:

Q. What parts of the complete process of manufacture of seed into oil are covered by the so-called Lawther process, as you understand it?

A. The rolls and heater, as I understand it.

Q. You say the old process passed the seed through two iron rollers. How were those rollers set?

A. They were set in a horizontal position.

Q. And how were they operated?

A. They were driven by a pulley and held together by tempering screws.

Q. Did they not do their work — substantially the same manner as the rolls in "Exhibit 1?"

A. The old-process rolls that we used and all I ever saw were used in a horizontal position and were held together by tempering screws. There was a belt on one, and the other ran by friction. They did not crush the seed so effectually as the five high rolls, passing through but the one time.

Q. Would they not have crushed the seed as thoroughly if the process had been repeated by passing the seed through two or more sets of rolls successively?

A. Well, it is possible now that it would. The rolls that I have always saw used in a great many mills were short, and with many of the crushers they merely wanted to break the seed with the rolls and do the balance of the work with the muller.

Q. Suppose the old rolls had been made of the same length

30 and diameter of the new ones, and three or four sets of them had been used successively, passing the seed on from one to another, would not the same effect have been obtained as in the new ones?

A. With the same rolling surface, I think it would.

Q. What you call rolling surface is determined by the length and circumference of the roll and its rate of revolution, is it not?

A. Yes, sir.

Q. Can you not, therefore, get the same rolling surface with rolls of different length and diameter by varying the rate of revolution proportionally?

A. I think so—yes, sir.

Q. That is a simple question of mathematics as applied to mechanics, is it not?

A. Yes.

Q. Mr. Hardy, are you an expert mechanic?

A. No, sir; I do not claim to be.

Q. But you are familiar with all the mechanical appliances in the oil manufacture?

A. Yes, sir; I have made it a study since I have been in the business as much as I could.

Q. Look at "Exhibit 1," please. How are the rolls operated?

A. There is a belt on each of these and a pulley directly underneath.

Q. The belts are run onto the pulley on the alternate rolls, are they not?

—. Yes, sir; just as this model represents.

Q. And the other rolls in between them are run by friction from the belted rolls?

A. Yes, sir.

Q. Is any other pressure applied to the seed in passing through the rolls than the simple weight of one roll upon the other?

A. No, sir.

Q. Is there anything peculiar or novel in the principle or process of crushing substances by passing them between heavy revolving rollers in contact with each other?

31 A. I scarcely know how to answer that question. There is nothing peculiar about it excepting that it crushes the substance well—gets it into a fine fibre. I have seen rollers for passing paper through and crushing substances; nothing new about that.

Q. It is a process long and familiarly applied in various industrial arts, is it not?

A. Yes, sir.

Q. I see that the axes in these five rolls are not set in the same perpendicular line, but are set in a zigzag line. Is there anything peculiar or novel in that?

A. It is thought that it makes it run steadier—throwing it off from the center.

Q. Revolving rolls used for crushing are set sometimes perpendicularly to each other, sometimes horizontally, and sometimes with their axes at an angle between the two, are they not?

A. I have never seen them set but the two ways—perpendicular or horizontal.

Q. Do you mean in the oil business?

A. Yes, sir.

Q. I mean generally in machines?

A. I have seen them in paper-mills at an angle, but in no other place.

Q. Please state to us what is the theory as to the condition of the oil in the seed.

A. I do not profess to be expert enough to explain that as it should be.

Q. Is not the oil contained in little cells in the seed, which have to be crushed?

A. I have never examined it closely enough to know.

Q. Mr. Hardy, has not a steam-jacket reservoir been in use ever since you have been in business?

A. The jackets that I used in the old process were of a somewhat different construction from this "Exhibit 2."

Q. How did they differ?

A. They were cast-iron and much smaller; there was no difference in mechanical structure; there was no steaming or moistening apparatus in the old one.

32 Q. The perforated steam-pipe, revolving in the inside of the reservoir, is the only part of "Exhibit 2" that is new, is it not?

A. Yes, sir.

Q. Did you buy your present machinery of Mr. Lawther?

A. Yes, sir.

Q. Did you buy the machinery simply, or did you get with it any documents giving the right to use the patent?

A. We bought the machinery, with the right to use the patent for the manufacture of linseed oil.

Q. Did you receive any writing giving you that right, or did you receive it by buying the machinery?

A. I am not positive about the writing—it was some four years ago—but rather think we did get a writing.

Q. You have no such writing with you?

A. No, sir. I am not positive about receiving one, but rather think so.

ALEXANDER HARDY.

Subscribed and sworn to before me this 19th day of May, 1882.

H. M. MUNDAY,
Notary Public.

CHARLES A. MCDONALD, produced on behalf of the complainant and being duly sworn, was examined in chief by J. W. MUNDAY, Esq., and testified as follows:

Q. What is your name, residence, and occupation?

A. Charles A. McDonald; 750 West Adams street, Chicago; manufacturer of machinery.

Q. Do you know the defendants, Charles S. Hamilton and Timothy W. Goodrich, or either of them?

A. I have met the gentlemen known by those names.

Q. What business are they engaged in, and where?

A. Manufacturing linseed oil and cake in the city of Milwaukee, Wisconsin.

Q. Have you ever been in their mill at Milwaukee?

A. Yes, sir.

Q. About when were you there, and do you know how they were manufacturing linseed oil?

33 A. I was there several times during the latter part of last year (1881), and observed their process and had it explained.

Q. Please describe the process they employ, beginning with the whole seed and ending with the extraction of the oil from the cake.

A. The seed is first passed through a series of rollers similar to the "Exhibit No. 1." It is then passed through a spout into a heater. In passing from the spout to the heater it is struck by a jet of steam and water, the quantity of each being regulated by independent valves. This model is a fair model of the original in Milwaukee.

The model referred to by the witness is offered in evidence, and the same is marked "Complainant's Exhibit 4."

Answer continued: The seed is stirred in the heater by means of an arm secured to a revolving shaft, dropping at regular intervals from a hole in the bottom of the heater to a larger heater immediately underneath, where it is further stirred by the same means. It is next folded in bags or other covering in the moulding-machine, thence taken and put in presses, where the oil is extracted by pressure.

Q. Did you see there at that mill any muller-stones like or similar to model "Exhibit No. 3?"

A. Yes.

Q. Were they in use?

A. No.

Q. Whereabouts were they?

A. They were on what I would call the main floor of the factory, where the rolls were and the presses. They were not in gear, as far as I could see.

Cross-examination by CHARLES E. SHEPARD, Esq.:

Q. When were you first at defendants' mill?

A. I think it was in the month of September, 1881.

34 Q. Do you manufacture the oil-making machinery of the kinds that Mr. Lawther claims under his patent?

A. I manufacture a portion of A. B. Lawther's machinery that is used for that purpose—that is, for the manufacture of oil.

Q. What portion of his machinery do you make?

A. We construct the whole machinery for the mill, but do not make all the machinery that is made for Lawther.

Q. You sell his rolls, rollers, and heaters, do you not?

A. Yes; subject to his instructions.

Q. Did you sell a set of rolls like "Exhibit 1" to the defendants in 1881?

A. I contracted to sell a set of rolls, which after use in defendants' factory were returned.

Q. Why were they returned?

A. Defendant stated that they were not sufficiently good for his purpose.

Q. What was the alleged defect found with them—in material or construction?

A. There was no fault found in the construction. Defendant claimed that the material was not sufficiently dense or hard—that it was porous.

Q. Were you ever there with the complainant, Mr. Lawther?

A. Yes; I think in September, 1881.

Q. Did you inspect those rolls there?

A. We examined the rolls.

Q. Did you and Mr. Lawther come to any conclusion whether they were defective or not?

A. Yes; my recollection of the conclusion is that two of the rolls were soft. These were immediately replaced by me.

Q. What was done with the new ones?

A. I shipped them to Milwaukee.

Q. Did defendants keep them?

A. Defendants returned the two condemned rolls, replacing
35 them by the two subsequently shipped, using them for some time. Afterwards the five rolls were condemned by defendants.

Q. What did defendants do with the five rolls finally?

A. They returned them to me in Chicago at different times. They were shipped on two occasions; perhaps in October and December, 1881.

Q. You had certain correspondence with the defendants about this matter, did you not?

A. Yes.

Q. Have you the letters received from defendants with you?

A. Not with me.

Q. Didn't you have a good deal of difficulty about that time with the rolls, which you had manufactured for this sort of machinery, which you had cast for you?

A. Yes.

Q. And you rejected quite a lot of them because they were poorly made, didn't you?

A. Yes; because they were of poor material—not hard enough.

Q. Didn't you finally sell to the defendants the frame and the whole contrivance for crushing, except the rolls?

A. I finally agreed to sell the roll-frame, without the rolls.

Q. With the consent or approval of Mr. Lawther?

A. I didn't consult Mr. Lawther in this matter.

Q. Hadn't you consulted him when you began negotiations with defendants?

A. No, sir.

Q. How many times did he go up to Milwaukee with you?

A. Mr. Lawther went once.

Q. He then knew of your proposed sale of a set of rolls to defendants, didn't he?

A. I suppose so.

Q. Wasn't what he and you went there about?

A. No.

Q. What did you go there about?

A. To examine the condition of the rolls.

36 Q. Did you inform him at that time that you had contracted to sell a set of rolls to the defendants?

A. I have no recollection of it if I did.

Q. Didn't he see there a set of rolls and frame of your manufacture like "Exhibit 1?"

A. Yes.

Q. Did he know they were of your manufacture?

A. I suppose so.

Q. Did they have on your name?

A. No, sir.

Q. Or any mark to identify them as of your make?

A. No, sir.

Q. Had any payments been made down on account of that set at the time of that visit?

A. Yes, sir.

Q. When?

A. About the time of entering into the contract—some time in July, 1881. The amount paid down was $400.00.

Q. On your last visit to defendants' mill did you not consent to sell them the frame without the rolls, with the understanding that they should get the rolls elsewhere?

A. I consented to let them have the frame at a stipulated price. I do not know whether that was at the last visit or not. That contract or agreement has not been fulfilled on the part of the defendants in this suit.

Q. In what respect?

A. The payment of the amount agreed on upon that occasion, in full.

Q. What amount was agreed on?

A. The amount offered by Mr. Hamilton for the roll-frame was $450. I have only received the original $400.

Q. You agreed to take $450?

A. I agreed to take $450.

Q. Did you and they agree at the same time that they should get the rolls where they wanted to?

A. I have no control over the action of Hamilton and Good-

37 rich. On that occasion I told them that they could retain three of the twelve rolls that I had sent them until such time as they could replace them, they having already purchased two chilled rolls in Wilmington, Delaware. They had already purchased two chilled rolls without seeking or receiving my consent; hence I had no control over any subsequent action on their part.

Q. Didn't you understand that they were to get other rolls elsewhere?

A. Mr. Hamilton told me that they would get rolls in Wilmington, Delaware, similar to the two already in their possession.

Q. What is the nature of your authority from the complainant about the sale of his patent or of machines like these?

A. We have, or rather I have, no authority.

Q. Didn't you tell Hamilton & Goodrich in their office that you had full authority to sell Lawther's machinery at his prices the last visit you made to Milwaukee?

A. I did not.

Q. Didn't you tell them on that occasion that this particular sale of the frame without rolls carried full authority to use it?

A. I did not.

Q. You make Mr. Lawther's machines?

A. I make a portion of the machines sold by Mr. Lawther; don't build all that he furnishes.

Q. And you sell some of them?

A. To Mr. Lawther's order I do.

Q. Don't you sell any except to his order?

A. None except to his order or approval.

Q. How did you come to make this contract with defendants in your own name?

A. Because Mr. Lawther was not in Chicago.

Q. He was afterwards informed of and approved of the contract, didn't he?

38 A. He may have been informed of it, but I don't know whether he approved of it or not.

Q. He never disapproved of it, did he?

A. Not to my knowledge.

Q. Did you account to him for his royalty on this frame without rollers?

A. No, sir.

Q. Do you pay him a royalty or are you paid a fixed price for what you make?

A. I am paid a fixed price for what I make for Mr. Lawther.

Q. You received this $400 yourself, didn't you?

A. I received it; it went into my pocket.

Q. Has that transaction ever been adjusted as between you and Mr. Lawther?

A. The transaction is an open account on our books until the payment of a balance due, and there has been no adjustment with Mr. Lawther on that matter.

Q. Is this the only instance where you have sold any part of Lawther's oil machinery directly?

A. This is the only instance where I have sold any portion of Lawther's machinery without first receiving his consent.

Q. How long have you been a mechanic—an expert machinist?

A. I don't know; I commenced to serve my apprenticeship the 7th day of June, 1865; I am learning something every day.

Q. Is "Exhibit 4" a perfect representation of the stirring and heating apparatus used by defendants?

A. It is a fair representation of the apparatus used by the defendants. The principle involved is the same as in the original machine in the defendants' mill, as shown and explained to me.

Q. Was "Exhibit 4" made under your direction?

A. No, sir.

Redirect by Mr. MUNDAY:

39 Q. Were you ever authorized in any manner, by Mr. Lawther, to sell to the defendants the roll-frame which they have that was made by you?

Objected to by defendants as not material or relevant.

A. No, sir.

Recross by Mr. SHEPARD:

Q. Why, then, did you assume to sell to the defendants the frame without rollers?

A. I was glad to try and make a settlement of any kind with Hamilton & Goodrich, as it was costing me large sums of money making rolls and they being returned without any remuneration for the same. I had received from them two notes, thirty and sixty days, which were presented for payment at the proper time and were protested. These notes I have now got in my possession. I was satisfied that at least seven of the twelve rolls were as good as any heretofore manufactured by me and that the defendants were simply using the rolls furnished by me until such time as they could receive a full set from Wilmington, Delaware. I will further state, to prove the conclusions then arrived at, that five of the rolls returned by the defendants are now in use in one of the largest works in Philadelphia, and have proved entirely satisfactory.

Q. Were not these notes you speak of notes that were originally given at the time of the proposed purchase of the roll and roll-frame complete?

A. Yes; the notes applied to the original contract.

Q. Weren't you notified that those rolls were defective before those notes became due?

A. I think the first note was due and payment was refused on it before any notification to me of any defect in the rolls; that is my recollection of it.

40 Q. Don't you have a large amount of dealings with Mr. Lawther, in your line?

A. I don't know how I can answer that question. Large is a matter of comparison, and, compared with the amount of machinery we manufacture for others, it is not large. Last year, or during the year 1881, I furnished Mr. Lawther about $26,000 worth of machinery; to the present date in 1882 I have made $18,000 worth. During the year 1881 I furnished the North Chicago Rolling Mill Co. machinery to the amount of $102,000, and during the past six months I have built machinery for another Chicago firm to about the same amount.

CHAS. A. MACDONALD.

Subscribed and sworn to before me this 19th day of May, 1882.

H. M. MUNDAY,
Notary Public.

The further taking of this testimony is continued until to-morrow, Saturday, May 20th, at 9 o'clock a. m.

H. M. MUNDAY,
Notary Public.

SATURDAY, *May 20th*, 1882—9 o'clock a. m.

Met pursuant to adjournment.
Present: As before.

And thereupon CLARK WOODMAN was produced, and, being sworn, was examined in chief on behalf of complainant by JOHN W. MUNDAY, Esq.

Q. What is your name, residence, and occupation?

A. Clark Woodman; Omaha, Nebraska; manufacturer of linseed oil.

Q. How long have you been engaged in the business of manufacturing linseed oil?

A. Ten years.

Q. What process do you now employ at your mill at Omaha?

A. The process that is named the Lawther process.

Q. How long have you used that process?

41 A. Four years.

Q. What did you use before that?

A. The old style of machinery known as the Collahan machinery.

Q. Please describe briefly the old process which you call the "old style" or "Collahan process," beginning with the whole seed and ending with the extraction of the oil.

A. Well, in the first place the seed was crushed between two small rollers sixteen inches long, twelve inches in diameter. One roller was run with a belt; the other was set up against it with set-screws and run by friction. These rollers was set side by side. The seed fed down between them run right through. That was the process of crushing. After that the crushed seed was placed under the muller-stones similar to the model No. 3; water was introduced into the meal, and it was ground up. The water was thoroughly mixed into the mass. After grinding it up a sufficient length of time it was taken out and put into heaters—a heater for each press. This heater was a hollow arrangement—one shell inside of another—steam between the two. It was warmed up in there until it was sufficiently warm; it was then drawn out into little woolen bags, the bags placed between hair mats, and the whole—mat and bag, all together—put into boxes in the press, and hydraulic pressure applied and the oil extracted.

Q. In like manner please describe the process you are now using, which you call the Lawther process.

A. The rolls we now crush through the Lawther process are four feet long, about thirteen inches in diameter. There is five of them, one setting above the other. The seed is fed into these rolls the whole length in a fine stream, running between the first one and the second one, so on down to the bottom, passing through

42 four times. The rolls are constructed similar to "Exhibit

No. 1." Then the seed drops into a conveyer, is carried into an elevator, and is elevated into a heater constructed just like "Exhibit No. 2." Live steam is introduced into the meal by that pipe which travels around in the bottom of the heater. We also introduce steam into the shell of the heater when it is necessary. After steaming it a sufficient length of time, when it is ready to be drawn out we draw it out and mold it into cakes in the moulding-machine. We keep up a continual flow of meal in the heater and continue to draw out and vary the volume of steam that goes in as it may appear to be necessary. It is regulated by the valve. After moulding it in the moulding-machine it goes into the presses, the pressure is applied, and the oil is extracted.

Q. Please describe the condition of the cake in the two processes after the pressure has been applied.

A. In the Lawther process the cake is what you might call flaky. The little particles of the hull not being broken up, they lay in stratas in the cake; they all lay down one way. There is a grain to the cake—regular grain. This is not the case with the cake made by the Collahan machinery. The cake of the Collahan machinery seems to lack the flaky character. By the Collahan machinery I mean the old muller-stone process.

Q. Is there any difference, in the amount of oil extracted, between the old process and the Lawther process?

A. I have found a difference of about two pounds to the bushel of seed more in Lawther than in the old style of machinery used by me.

Q. That is a little over a quarter of a gallon of oil to the bushel, is it not?

A. Yes; a fraction over, seven pounds of oil being a gallon.

43 Q. The cake, after the oil is extracted, is sold, is it not, for feed?

A. Yes, sir.

Q. Do you notice any difference in the salability of the cake produced by the two processes?

A. No. It all sells well enough, but the cake produced by the Lawther process sells for a little more; I am not prepared to say how much; I have not watched it closely enough.

Q. What has been your practice, Mr. Woodman, with regard to the making of tests in the running of your mill to determine the yield of oil; how often have you been accustomed to test that matter?

A. When I was running the Collahan machinery I made tests myself about every day—that is, during the last two years that I run the Collahan machinery. Since I have been using the Lawther machinery I have made tests six times during the twenty-four hours' work—that is, a cake was taken out every four hours and tests made upon those cakes.

Q. Your statements of the comparative yield of the Lawther process and the old-style process used by you is based upon these tests, is it?

A. Yes.

Cross-examination by Mr. SHEPARD:

Q. Are you an expert mechanic and machinist?

A. No; I do not consider myself much of an expert, although I learned the machinist trade when I was young.

Q. How many years of practical experience have you had in machinery?

A. About twenty-five, around machinery.

Q. Does not the manufacture of oil from seed depend primarily for its results upon the principle of thoroughly crushing the seed?

A. Well, I should answer that, in a measure, it does, taking
44 in combination with other methods of working the seed. No matter how well the seed was crushed, if it was placed under the muller-stones it would have very little effect, as the muller-stones would destroy the hull of the seed and leave it in bad condition, but by being warmed in the heater, without the use of muller-stones, and the introduction of live steam the gradual reduction of the seed is desirable, so considered.

Q. Can you attain as good results by either process without thoroughly crushing the seed?

A. I think not.

Q. Then, primarily, the good results depend on the thorough crushing of the seed, does it not?

A. I can't answer that it depends alone on the crushing of the seed.

Q. Is not the principle of crushing between rollers the same in the old process and in the new?

A. No, sir.

Q. By principle I do not mean the mode or thoroughness of working—I mean simply the mechanical principle of crushing between revolving rollers.

A. No, sir; I will have to refer to the manner in which the force is applied to all the rollers. In the Collahan rolls there is only two of them and the rolls are rigid; one is held up against the other with a set-screw; the rolls do not give a particle. In the Lawther process the rolls lay loosely one on top of the other, from the bottom clear up, and the weight of the first roll and the tension of the belt is what gives the crushing power as the seed passes through the first time, which is merely sufficient to flatten the seed. As it passes through the second time it has the weight of two rolls and the tension of the first belt; the third time it has the weight of three
45 rolls and the tension of two belts; the fourth time the weight of four rolls and the tension of two belts. That is what we term "gradual reduction"—Collahan machinery—you might call it instantaneous reduction.

Q. Could you not obtain as good results by crushing between four sets of the old rollers successively as by the new rollers?

A. No.

Q. Why?

A. The reason would be that by using four sets of Collahan rolls

the rolls would be set rigid together by set-screws, and there would be no gradual reduction about it.

Q. The unbelted Lawther rolls turn by friction from the belted ones, do they not?

A. They do, aided by the weight of those above, but not as applied rigidly by set-screws.

Q. Is the number of five rolls essential to his plan or is it just for convenience?

A. I can't answer that question intelligently, as I have never used any but five in Lawther machinery.

Q. If you used just two Lawther rolls what would be the result?

A. Simply flattening the seed. The seed would be in the condition it is now when it passes through the first time—not broken up.

Q. Then you got no oil, or very little?

A. I never tried to press it in that condition.

Q. Have you ever tried to crush the seed thoroughly by passing it over and over between the old rollers?

A. No. It would be impossible to do it.

Q. Was the seed as thoroughly crushed by the old process as by the new?

A. Not for the purpose of extracting the oil from it. In some respects it was more thoroughly crushed; the hull of the seed was more broken up; I mean broken up by the rolls. What escaped the rolls the mullers finished up.

46 Q. The heating in the two processes, apart from the moistening by steam, is the same, is it not?

A. Yes; with the exception of one the heater is covered up and the other is open, and every press full of the Collahan machinery was warmed up separately.

Q. Which one was open?

A. Lawther's.

Q. Wasn't the construction of the heater, except as to the steam-pipe inside, the same in each process?

A. Lawther's heater is much deeper than the other—one is cast iron, the other wrought. Collahan's is cast iron and shallow—Lawther's wrought iron and deep. Lawther's heater you admit the steam to the bottom and to the sides separately to separate pipes and two separate valves. In the Collahan machinery the steam was admitted to the bottom and sides at the same time through one pipe and one valve.

Q. Isn't the principle of heating—not moistening by means of a steam-jacketed reservoir—the same in both?

A. No, sir.

Q. State how.

A. In the Lawther machinery the steam is admitted at the bottom and the sides. You can shut it off at either side or bottom. In the Collahan, if you admit to one you admit to the other at the same time. They are both steam-jacket heaters, of course.

Q. Is there any difference in the presses used in the two processes?

A. Oh, yes; there is a vast difference in those that I have used.

The Collahan presses might be termed box-presses. The Moore press that I use is a plate-press.

Q. The Moore press is the one you use with the Lawther process, is it not?

A. Yes. I call it Lawther or Moore.

Q. How long has the Moore press been in use?

47 A. I do not know; I cannot say. Perhaps twenty-five years.

Q. You say that the cake of the Lawther process sells a little higher. Is that due to its flaky condition or to the thin shape of the cake?

A. Well, it may be attributed to both. It is a nicer looking cake—lighter colored.

Q. The press used in the Lawther process makes a broader and thinner cake?

A. Yes; the size of the cake is due to the Moore press.

CLARK WOODMAN.

Subscribed and sworn to before me this 20th day of May, A. D. 1882.

H. M. MUNDAY,
Notary Public.

Whereupon counsel for complainant offers in evidence the original letters patent of the United States, No. 168,164, granted to Alfred B. Lawther for improvement in processes of treating oleaginous seeds, dated September 28, 1875, and the same is marked "Complainant's Exhibit A."

ALFRED B. LAWTHER, a witness produced on behalf of the complainant, being duly sworn, deposes as follows:

Q. What is your name, residence, and occupation?

A. Alfred B. Lawther, Chicago, Illinois; manufacturer of oil machinery.

Q. Are you the complainant in this case, and the patentee and owner of letters patent sued on, "Exhibit A?"

A. Yes, sir.

Q. Do you know the process employed by the defendants in their mill at Milwaukee, Wisconsin, for treating oleaginous seeds for the production of oil?

A. I don't know that I do, fully. I have been in the mill and seen some of the machinery. I did not see it running.

Q. Did you hear Mr. McDonald's testimony?

48 A. Yes, sir; a part of it.

Q. I will ask the notary to read to you Mr. McDonald's description of the defendants' process contained in the answer to interrogatory 6th of Mr. McDonald's deposition.

The answer referred to is here read to the witness.

Q. Do you understand that description?

A. Yes, sir; I understand the description.

Q. Please state whether or not, in your opinion, the process thus described is substantially the process patented to you in the letters patent, "Exhibit A," and give such reasons as you may desire for any opinion you may express.

Objected to as inadmissible, because it calls for an opinion of law, and because the witness has not been shown to be qualified to express an opinion as to the question of mechanics.

A. It is my opinion it is substantially the same process as described and claimed in said patent. I have no other reason to give except that it is a similar operation and produces the same result.

Q. Have you had any experience in the use of oil-manufacturing machinery and processes?

A. Yes, sir.

Q. To what extent?

A. About eleven or twelve years.

Q. Have you examined and are you familiar with the operation of oil-making mills in various parts of the country, and to what extent?

A. I am familiar with the operations, and I have had something to do with thirty mills, at least, in this country.

Q. Have you examined the mills of other countries?

A. I have; in Great Britain only.

Q. Prior to your invention of the patented process under
49 consideration, what was the process in general and most successful use among mills for the treatment of oleaginous seed for the production of oil?

A. Well, the process in use, so far as I ever saw it, and I think it was the one in general use, was as follows: Crushing the seed between rollers, grinding it in what was called muller-stones with the addition of a quantity of water, heating, and then pressing by hydraulic presses.

Q. Explain briefly your patented process.

A. It consisted in crushing the seeds by rollers, heating and moistening by direct and indirect action of steam, and then pressing.

Q. What objects did you seek to obtain by this process?

A. Uniformity in the crushing and moistening the seed. We wanted primarily, of course, to get more oil, the oil being the more valuable part of the product, and to do that it was necessary to crush our seed to such a condition as would allow the presses to express it. The grinding operation of the muller-stones was either too much or too little, or both combined; the soft or fine part of the meal protected the coarser parts and prevented the stones from grinding it unless the operation was continued so long as to reduce the fine part to a paste. The objection to its being in this pasty condition was that the oil couldn't get out of the cake after the press had condensed the cake. Now, if there were any imperfectly crushed or unground portions, the fine portions protected them in the press and they did not yield their oil. The water was put into this meal

in a mass, more or less; the part of the meal that it would come in contact with would be too wet; subsequent mixing and heating did not distribute it uniformly. A portion remained too wet and a portion too dry, but intimately mixed together. It seems to be
50 necessary to have a certain amount of moisture in the seeds. Too much interferes with the yield of oil and too little interferes with the yield of the oil. If a portion of the meal was too wet and a portion too dry, the average moisture might be right, but the result would be imperfect. We got over the difficulty of this moistening operation by adding water to the crushed seeds in such a gradual manner that we could not over-wet any portion; a repetition of the operation would add the requisite quantity. I used steam because it was the finest subdivision of water that I could get. This operation of the stones—I mean the old process of muller-stones—is done in a mass. The stones, of course, did not discriminate between that portion that was ground enough and that portion that was not ground enough, so we had to go to an arrangement by which we could crush each seed individually. That we accomplished by feeding a thin sheet of seed to the rolls. This method of crushing and moistening resulted in a flaky cake—stratified cake—and an increased yield of oil.

Q. What is the extent of that increased yield of oil, if you know?

A. It has been approximated at a quarter of a gallon of oil to the bushel; equals four to five per cent. less oil that is left in the cakes. That means an increase in the actual yield of oil of about twelve and a half per cent.

Q. Do you understand that your patented process is limited to any special kind of machinery for carrying the several steps into operation?

Objected to as asking for a conclusion of law.

A. I do not so understand it.

Q. What is the first step in your patented process?

A. Crushing each individual seed, or more particularly, crushing each individual oil-cell.

Q. What is the next step?

51 A. The moistening and heating combined.

Q. What is the next step?

A. Pressing.

Q. Have you a patent upon the special structure shown in "Exhibit 1?"

A. I have.

Q. That is later in date than your process patent, is it not?

A. Yes, sir.

Q. Have you also a special patent upon the heater and moistener, "Exhibit 2?"

A. I have.

Q. Have you ever known of a mill where your five high roll crusher, "Exhibit 1," was used in connection with muller-stones as a substitute for the old-fashioned crusher?

A. Yes, sir.

Q. Where and when was that?

A. Well, they have been so used at Amsterdam, New York, up to within a month, perhaps.

Q. What was the result upon the yield of oil from that use of the five high rolls with the muller-stones?

A. I could not tell you what the result was before the change was made, but after the change their work was essentially the same as the other old-process mills of the country.

Q. Did these parties at Amsterdam, New York, subsequently adopt your process?

A. Yes.

Q. You have sold some sets of your patented rolls to millers to be used in connection with muller-stones, have you?

A. So understood when they were sold.

Q. Now, Mr. Lawther, state generally and briefly, if you are able, what number of mills have adopted your process under your authority, and what is the aggregate saving per annum by use of the same?

A. There are thirty-one mills now erected. Capacity of about four and one-half million of bushels per year. That would be a saving of a million gallons of oil; at the present price of oil
52 that would be one-half million dollars per annum that is saved.

Cross-examination by Mr. SHEPARD:

Q. Give the dates of those other two patents you spoke of.

A. June 1st, 1875, No. 163,933; August 8th, 1876, No. 180,770.

Q. Do you understand that this patent sued on covers the whole process of reduction of the seed to oil by your plan, as you have described it?

A. Yes, sir.

Q. Is the number of rolls an essential part of your plan, or do you use five just for convenience?

A. I think it is not an essential part; we use five because it is a convenience.

Q. Have you ever worked a different number of rolls; and, if so, how many?

A. Yes, sir; I have; we have worked four in the set.

Q. How did they work?

A. Essentially the same as five, with the exception of the difficulty of operating them.

Q. What difficulty?

A. It is a mechanical difficulty; we cannot belt them conveniently. An odd number of rolls is best for belting.

Q. If the weight of the rolls is increased in proportion, will not four crush as well as five?

A. I do not want to answer that broadly. They would not do as well, but they could be made to do to some extent.

Q. Did you see at Milwaukee, in defendants' mill, a set of rolls that McDonald was selling to the defendants?

A. I did see a set of five high rolls that Mr. McDonald made of

my pattern. That was my business there. I went, at Mr. McDonald's request, to examine them.

Q. Did you know McDonald had contracted to sell them to the defendants?

A. I did not know anything personally; only from inference.

53 Q. What information led you to draw your inference?

A. Well, the general talk around McDonald's office.

Q. Didn't you have conversations with the defendant Hamilton about those and other rolls at McDonald's shop?

A. I had at least two, and maybe more, talks with Mr. Hamilton at McDonald's office.

ALFRED B. LAWTHER.

Subscribed and sworn to before me this 20th day of May, 1882.

H. M. MUNDAY,
Notary Public.

53½ COMPLAINANT'S EXHIBIT "A."

UNITED STATES PATENT OFFICE.

ALFRED B. LAWTHER, of Chicago, Illinois.

Improvement in Processes of Treating Oleaginous Seeds.

Specification forming part of Letters Patent No. 168,164, dated September 28, 1875; application filed March 6, 1875.

Case A.

To all whom it may concern:

Be it known that I, Alfred B. Lawther, of Chicago, in the county of Cook and State of Illinois, have invented a new and improved process for treating oleaginous seeds, of which the following is a specification.

The object of my invention is to improve the process of working flaxseed, linseed, and other oil seeds in such a manner that a greater yield *yield* of oil is obtained at a considerable saving of time and power in the running of the crushing, mixing, and pressing machines, while also a cake of superior texture is produced.

Hitherto it has been the practice to crush the oil seeds between revolving rollers, and completing the imperfect crushing by passing them under heavy stones, known as edge-runners or mullers, under addition of a quantity of water, the crushed and moistened seed being then taken from the muller-stones and stirred in a heated steam-jacketed reservoir preparatory to being placed into the presses for extracting the oil.

This process has been found imperfect in regard to many points, but mainly on account of the over-grinding of portions of the seed and the husks or bran when the seeds were exposed for too long a time to the action of the muller-stones, so as to form a pasty mass and produce an absorption of oil by the fine particles of bran, while on the other hand the under grinding, by too short an action of the stones, rendered the presses incapable of extracting the full amount of oil from the seed.

The texture of the cake allows in one case hardly the recognition of the original material, breaking indifferently in all directions, while in the other case it contains uncrushed seeds, causing a loss of oil and of nutritious parts.

My process is intended to remedy the defects of the one at present in use, and consists mainly in conveying the oil seeds through a vertical supply-tube and feeding-roller at such degree of pressure to powerful revolving rollers that each seed is individually acted upon and the oil-cells fully crushed and disintegrated. They are then passed directly, without the use of muller-stones, to the mixing-machine to be stirred, moistened, and heated by the admission of small jets of water or steam to the mass, and then transferred to the presses.

The oil seeds are by my new process first conveyed to a hopper and fluted feed-roller at the top of an upright feed-tube of the crushing-machine, by which the seeds are fed, under suitable pressure, to revolving rollers of sufficient power, which run at a surface speed of about one hundred and fifty to two hundred feet per minute.

The pressure on the seeds in the feed-tube is necessary, as the oil seeds would otherwise not feed readily into rollers revolving under great pressure. The oil seeds are thereby compelled to pass evenly and steadily through the rollers, which have, therefore, a chance to act on all of them and break the oil-cells uniformly without reducing any portion to a pasty condition. The bran is also left comparatively course, so that it shows the nature of the seed after pressing.

The muller-stones, and their over or under grinding of any portion of the seeds, are entirely done away with by this mode, which makes not only the machinery less expensive, but produces also a saving of power required in running the same. The crushed seeds are next placed in a steam-jacketed reservoir of the mixing-machine, where they are stirred, moistened, and heated by perforated revolving stirrer-arms, which throw jets of water or steam into the mass, so as to thoroughly permeate and mix the same. The crushed and moistened mass is then transferred to the presses for the extraction of the oil, which operation requires less power, on account of the uniformity of the mass, produces a greater yield of oil, and furnishes an improved quality of oil-cake or residue, of open-grained flaky nature, capable of being split in regular pieces, at right angles to the direction of pressure.

53¾ Having thus described my invention, I claim as new and desire to secure by letters patent—

The process of crushing oleaginous seeds and extracting the oil therefrom, consisting of the following successive steps, viz: The crushing of the seeds under pressure, the moistening of the seeds by direct subjection to steam, and finally, the expression of the oil from the seed by suitable pressure, as and for the purpose set forth.

ALFRED B. LAWTHER.

Witnesses:
JAMES WRIGHT.
CHAS. F. HILLS.

54 *Defendants' Testimony.*

United States Circuit Court, Eastern District of Wisconsin. In Equity.

ALFRED B. LAWTHER

v.

CHARLES S. HAMILTON & TIMOTHY W. GOODRICH.

MILWAUKEE, *August 11th*, 1882.

Munday, Evarts & Adcock, complainant's solicitors; Davis, Riess & Shepard, defendants' solicitors.

Testimony on reference, under rule 67 in equity, before Francis Bloodgood, master in chancery, at Milwaukee, August 11th, 1882.

JOSEPH R. EVANS, called by the defense, being duly affirmed, testified:

Q. Where do you reside?
A. Indianapolis, Indiana.
Q. What is your business?
A. Manufacturing linseed oil.
Q. How long have you been in that business?
A. About eighteen years.
Q. Or of oil from seeds?
A. Eighteen years personally, and I knew something about it before. My personal knowledge extends back eighteen years.
Q. Read the specifications of the patent to the complainant, No. 168,164, annexed as an exhibit to the bill in the case. You have read it over to the end?
A. Yes, sir.

55 Q. State whether or not you have ever known any part of the process described in these specifications to be used before the date of the patent.
A. Yes, sir; I have.
Q. Where, when, and by whom?

Question objected to as incompetent under the pleadings.

A. The first that I notice is the crushing process. Ever since I have known anything about the oil business—which is eighteen years—we have always used the steam-jacket reservoir for heating. I believe the only difference between the manner that has been in use for the last thirty years and this is in his process the non-use of muller-stones and the injection of steam for moistening instead of water—the injection of steam into the reservoir instead of putting water under the muller-stones.
Q. When did you first know of the use of the process of crushing seeds by rollers under pressure? State where and by whom you knew of that use.

Objected to.

A. That goes back as far as I can remember anything. My father had an oil mill.

Q. Where was that used?

A. In Warren county, Ohio; two rollers.

Q. How were they situated?

A. Right side by side.

Q. How was the pressure by rollers applied?

A. I cannot state that, but I presume they were somewhat similar to what we used after I was in the business myself. One roller was run by a belt and the other the pressure was made by set-screws, screwing the other roller up to it.

56 Q. Is not that the method or process of crushing commonly known as the Callahan process?

A. It is generally called that in the West, but it is a process that has always been in operation more or less all over the country.

Q. You have heard the testimony of the witnesses Lawther and Woodman taken for the complainant?

A. I have.

Q. Is not the process of two rollers set side by side, which you have just described, substantially what those witnesses in their testimony described and named as the Callahan process?

A. Yes, sir.

Q. State whether or not you have ever known of any other particular method of crushing by roller or applying pressure by roller to crush the seed.

A. I have.

Q. When and where?

A. The first set I ever saw was in the city of Philadelphia; it was close to sixteen years ago—sixteen years this coming fall.

Q. Who used that method?

A. Grove Brothers, of Philadelphia.

Q. State what that method of crushing was. Describe particularly the mechanism used in the process of crushing.

A. There were rollers—I could not say how many, but there were more than two; they were right on top of one another instead of setting side by side, one lying on top of the other, and they were run by power of belts, part of them, and part by friction. My attention was called particularly to them because it was different from anything I had seen.

Mr. HAMILTON: That would be in the fall of 1866?

A. Yes, sir; the fall of 1866. I saw a set of four rollers in the winter of 1867 and 1868; I could not say whether it was the last of 1867 or first of 1868; that was in Jersey City, in the mill of

57 I. & C. More & Co. There were four. The same year I saw another set of four rollers running in the mill of Jewett & Sons, Staten Island.

Q. Have you ever known that method of crushing to be used elsewhere or by any other person?

A. We put up a set of four rolls in our factory in the summer of 1868.

Q. Whom do you mean by "we?"

A. I. P. Evans & Co., Indianapolis, Indiana. That firm is my brother and myself.

Q. That was in your factory in Indianapolis?

A. Yes, sir.

Q. Have you continued using that set of rollers or that method of crushing from then until now?

A. We have, except we have added one more roller to them.

Q. When did you do that?

A. I could not say. I think it was—we first added the fifth roller, my impression is, after the four rollers had been turned several times, and we considered they were too light to crush the seed as we desired. We just used the top roller, the fifth roller, as a weight.

Q. Can you fix about the time when the fifth roller was added?

A. I could not be positive, but I suppose in the neighborhood of 1871 or 1872—somewheres along there.

Q. You still use those five rollers?

A. We still use those five rollers.

Q. How do you run them, as to the application of the power?

A. We now use the five rollers, belting the top, the middle and bottom roller, and the second and fourth rollers run by friction.

58 Q. Have you run those rollers under license or permission from the complainant in this case, or under this patent described in this case?

A. No; we have not.

Q. State whether or not that method of using rollers placed one on top of another which you have used, and others, as you have described it, is the same method as is described in the testimony of Mr. Lawther you have read here.

A. It is very much like it; it differs none from the use of four rollers, except passing the seed under the rollers once additionally.

Q. You recollect how he describes his arrangement of the stack of rollers, and the application of the power?

A. Yes, sir.

Q. And the method you have used and seen used is the same as to the application of the power, and as to the laying of rollers one on top of the other?

A. Yes, sir; I may say, in addition to that, we have used when our five rollers become light by several turnings as they wear out, we have added the weight on them by placing the sixth roller on top and using the sixth roller as a weight, as we did originally the fourth.

Q. State whether or not you ever knew of the crushing of the seed by passing it more than once through two rollers side by side, according to the so-called Callahan process.

A. I have seen it worked.

Q. When and where?

A. In the mill of T. & J. Gebhart & Co., Dayton, Ohio; as to the time, I could not say, but that company has been out of existence I should say at least twelve years—they have been out of existence at

least ten years, and it was previous to their retirement. I remember they placed two sets of these Callahan rollers, one on top of the other, and the seed was first received by the upper set and crushed, and, my impression is, then dropped right into the lower
59 one—anyhow, it passed through the second set of rollers before being used.

Q. When you say they placed one set of the Callahan rollers on top of another, do you mean they placed them resting on the lower one, as in the method of perpendicular rods, or one was above another, and the seed dropped through?

A. They were set in their own frames, one probably two or three feet higher than the other; the four rollers had no connection with each other; just a regular set of two rollers. First we used to break them with pinch-rollers, and the seed would be crushed just as a mill would crush; that was only using one set, and the seed was conveyed from that set of rollers into the other set.

Q. Then is it not possible to crush the seed by passing it over and over through the old style of pinch-rollers?

A. I think it would be; I think the result would be the same as using four or five rollers, one on top of the other; it would depend upon the number of times it was run through.

Q. State whether or not you know that the result as to the crushing or grinding of the seed is the same by that method of passing it more than once through the pinch-rollers, or as it is with the method of passing it through a stack of four or five rollers high.

A. I should suppose that the passing of the seed through two sets of pinch-rollers would hardly grind it as fine as passing it through a stack of four or five rollers high. But if you take several sets of pinch-rollers of equal capacity, equal length and size, and pass the seed through them as many times as passing through a stack of four rollers, I think the result in the crushing would be the same.

60 Q. This patent describes as part of the process of crushing the feeding of the seeds through a vertical supply-tube and feeding-roller under pressure. State what that has to do with the crushing or grinding of the seed.

A. If I understand what he means by that, and I do not know as I do, I would say it has nothing to do with it; it puts the pressure on the seed just the moment he feeds the seed-rollers by the fluted feed-roller; he destroys any pressure he has on top.

Q. Explain what you mean by saying "he destroys the pressure."

A. The use of the feed-roller is to distribute the seed evenly—continually and evenly—giving the same feed, and if he has a pressure on the column of seed down a spout he has a cut-off for the use of the feed-roller whenever the feed-roller turns around and carries its usual amount of seed; there is no pressure on that seed—from the seed to the crushing rollers; the feed-roller carries it around and drops it on an inclined plane, as I understand it from the specifications in the patent there; would carry the seed and drop it on — inclined plane, and then it carries itself down to the rollers without any other pressure.

Q. In the mechanism or contrivance of feeding to any sort of

rollers for crushing seed the feed is always brought immediately in contact with the rollers by an inclined plane?

A. That is the only way I ever saw.

Q. And it slides down that plane loosely, and by the gravitation of each individual seed, not under pressure from above.

A. That is the only way I have ever seen the seed go into the rollers; just drop it onto the inclined plane; it goes down to the rollers itself.

Q. What is the action or function of the muller-stones in the old process of making oil?

A. Mixing dampness, either water or steam, with the meal
61 preparatory to the heating process, and thoroughly tearing apart the particles of seed sticking together after it passes through the rollers—a kind of kneading operation, mixing.

Q. The specifications of this patent refer to the over-grinding and the under-grinding of different portions of the seed by the use of muller-stones. What have you to say about that?

A. I do not agree with him in regard to the muller-stones being used as additional grinders. We have always looked upon them as the mixers, and mixing water, whether it is applied in the form of water or steam. It is a known fact that if the seed gets under the muller-stones merely cracked or broken in two it will go into the cake in the same condition; the stones will not grind that up.

Q. State whether the long working of the mass of ground seed under the muller-stones produces a pasty condition, as stated in the specifications.

A. It will, unless there is a sufficient quantity of water put in and run too long.

Q. What does that pasty condition of the ground seed depend upon?

A. I could not answer that question positively. When placed under the muller-stones, if left too long or with too little dampness, it will become pasty.

Q. Is there any method of rectifying it?

A. Yes, sir; by putting in some water, steam, or water to a certain extent.

Q. Then the application of more or less water or steam to the mass of ground seed is just a matter of practical skill and judgment, according to the circumstances of each particular lot of seed?

A. Very much so. Some seed goes in with a great deal
62 more dampness than other, and the amount of dampness you use in working that seed is not near as much as required to work seed that is very dry. That is my experience in our factory.

Q. State whether or not the muller-stones were used in connection with the sets of perpendicular rollers used by yourself and others that you have mentioned.

A. They were.

Q. Have you ever known a set or stack of rollers set perpendicularly to be used without muller-stones, or ever known muller-stones to be dispensed with where such a set of rollers was used?

A. Not to my personal knowledge previous to 1872. I know that

the firm of I. & C. More & Co. were experimenting on them, I think, as early as 1872, but whether they abandoned the muller-stones I could not say.

Q. State whether you have ever known of the direct subjection of the crushed seed or meal to steam for the purpose of extracting the oil prior to the date of this patent, in the method substantially as described in the specifications.

A. The direct application of steam?

Q. Yes, sir.

Last question repeated.

A. Our firm made direct application of steam in the meal, I think, as early as 1874, but I could not be absolutely positive as to the date.

Q. Describe the particular method in which you apply the steam and the mechanism you use.

A. We use it in connection with the muller. There was a steam-pipe about the width of the mullers which is perforated, and that injects the steam into the meal. This pipe travels around
63 with the muller-stones. I could not be absolutely positive as to the date which we applied it.

Q. According to your best recollection, what year was it?

A. It was eight or nine years ago when we first commenced, according to my recollection—it might be in 1873 or 1874.

Q. State whether or not you practically applied that to the manufacture of oil.

A. We did. After we commenced we continued right along—I mean after we had experimented on it for quite awhile, probably two or three months right along. We used sometimes to change back and use water. It would depend a little upon the kind of seed.

Q. Did you use that as a substitute for the old method of applying water?

A. Yes, sir.

Q. How was the water formerly applied?

A. It was formerly applied by a small stream or perforated pipes. I think we used under one set of mullers perforated pipes, and the others just a small pipe that let out a stream. I can't be positive as to that now. We also experimented as early as 1873, if not 1872, with using steam to dampen the meal without the use of mullers.

Q. How did you apply it in that way?

A. Just added a small tub and coil with small perforations.

Q. And how was the meal stirred or mixed with the steam?

A. I think stirred over it; I cannot remember just exactly.

Q. Did you practically apply that method?

A. We did for a short time, but not on all the machinery; just a part.

Q. How did it operate?

A. Fairly. We did not get any better results than we did the other way; consequently we, for the present, dropped it.

64 Q. The specifications of this patent refer to the defects in the old process of getting a part of the meal or ground seeds

too wet and part too dry, and claim that that defect is corrected by this process of direct subjection to steam. State whether or not it is possible to get the meal too wet or dry by this method described in this patent.

A. It certainly is. I don't see much difference between overwetting in one process and the other.

Q. Which process of wetting or steaming the seed do you now use?

A. We wet it with water, according to the old method. You speak of the old method. We don't always use the muller-stones. We still have them in the mill, and we have run them; sometimes run without and sometimes with them.

Q. State whether or not the cake produced by the process described in these specifications is worth any more for feeding purposes, or will produce better results in feeding, on account of the so-called flaky nature of the cake, than the cake will that is produced by the old process.

A. The value of it for feeding I should say was no better. I should suppose there was no difference whatever between the two kinds. For a number of years we have made what is known in the cake market as the broad thin. It is called that from the size of the cake. It is broader and longer and thinner than the other.

Q. Does not that result simply from the difference in the form of the boxes in which it is pressed?

A. It is the form of the boxes or plates in which the meal is pressed that gives the shape of the cake.

Q. State, if you know, whether there is any difference in the result as to the yield of oil produced by the old method or process, or in the process described in this patent.

65 A. I should say that depends a good deal upon how the men watch the work. The nearest I could give an answer to that would be to state the fact that I have a good many times analyzed samples of cake that we were working under the old fashion, what is called the Callahan process, and the cake from manufactories that were working under the Lawther process. I found as much oil in the cake by the Lawther process as I found in our own cake we were making then under the Callahan process. We are not working strictly by the Callahan process at present, but we don't find we get any better results than we used to while working by the Callahan process.

Q. From what mills did you get cake produced by Lawther's process?

A. Northwestern mill, of Chicago, several times; from the Wright & Lawther Co., of Chicago, a good many times.

Q. Lawther, the complainant in this case, is one of the proprietors of the Wright and Lawther mill, in Chicago, is he not?

A. He was one of the original proprietors, but whether he has any interest in it at present I could not state.

Q. Lawther, in his claim in his patent, describes three steps as performing the entire process patented, namely, the crushing of the seeds under pressure, the moistening of the seeds by direct subjection to steam, and the expression of the oil from the seed by suitable

pressure. State whether or not, so far as you know, there ever has been any other method of making oil from seeds than the crushing of the seeds under pressure.

A. I have never known any.

Q. Did not every process you ever heard of use that as the first step?

A. Crushing? Yes, sir.

66 Q. As to the moistening of the seeds by direct subjection to steam—you have already stated, have you not, what you know as to any prior use of the direct subjection of steam?

A. Yes, sir; I have.

Q. Thirdly, as to the expression of the oil from the seed by suitable pressure. State how the oil has always been expressed from the ground seed or meal in the methods you have known anything about.

A. The present method, known as the hydraulic pressure, has been in use as far back as I can remember.

Q. Twenty years or more?

A. Yes, sir; thirty-five.

Q. Is not that the only method that has been in use among oil manufacturers?

A. It is the only method of pressure I know of that is in use.

Q. What particular kind of press is used in what is called the Lawther process?

A. What is generally called the Moore press.

Q. How long has that press been in use?

A. I should say as long as twenty-five years; possibly longer.

Q. In the moistening or wetting process, suppose the water is distributed through the meal as evenly as steam is, which would produce the better results, the meal wet with steam or the meal wet with water?

A. I cannot say; we have tried both ways and we cannot see any difference, where they are both properly distributed and when properly mixed with the meal.

Q. You have taken tests of the precise results of each?

A. Yes, sir; sometimes one is better, sometimes the other. The best way to test that is the amount of oil we get out of a given amount of seed, the amount of oil in the cake; that is the closest test, that is the way we generally test it, and also test the cake, the amount of oil left in.

67 Q. When steam is directly applied to meal does not the steam, as a matter of course, condense immediately upon coming in contact with the meal?

A. Yes, sir.

Q. Then a direct application of steam merely amounts to the direct application of water in a finely subdivided condition, does it not?

A. I should think so. When steam strikes a cold substance it goes into water almost immediately.

Cross-examination waived.

A. C. ABBOTT, called by defense, being sworn, testified:

I live in Marshalltown, Iowa. I am a manufacturer of linseed oil. I have been in that business ten years.

Q. You have given your personal attention to it?

A. Yes, sir.

Q. And are practically acquainted with the method of extracting oil from seed?

A. Yes, sir.

Q. State what process of extracting oil you use.

A. We use the process that is known as the More presses, and the machinery that accompanies it.

Q. Is that what is frequently called the Callahan process?

A. No, sir.

Q. What process of crushing the seed and of heating and moistening do you use?

A. We use a stack of rollers, mullers, and steam-jacket reservoir.

Q. Those rollers are set perpendicularly, one over the other?

A. They are.

Q. How many do you use?

A. Four.

Q. By what power do you run them?

A. Belts.

Q. Applied to which one of the rollers?

A. First and third, counting from the top.

Q. And the other two run by friction?

A. Yes, sir.

Q. How long have you used that method?

A. Ten years.

68 Q. State whether or not you knew of their use prior to that time.

A. Yes, sir.

Q. When and where?

A. By I. & C. More & Co., in Jersey City.

Q. At what time?

A. I first knew of their being used in 1872. They have been used there a long time prior to that; just how long I can't say.

Q. You knew of that yourself prior to your going into business?

A. Yes, sir.

Q. From whom did you get your rollers?

A. Of I. & C. More & Co.

Q. You did not operate, then, under Lawther's patent or by his license?

A. No, sir.

Q. Have you known of the use of those rollers—of that method of crushing—by any one else?

A. Yes, sir; Evans & Co., of Indianapolis; H. S. Clark & Co., of Mendota, and, I think, Wright & Lawther Co., of Chicago. Clark & Co. was Wells & Co. at the time they started.

Q. How long a time ago did Clark & Co. or their predecessors use that method of crushing?

A. I think in 1870 or in 1871—thereabouts; that is Mendota, in Illinois.

Q. How many rollers did they use?

A. I am not able to state definitely. It was a stack of rollers.

Q. It was run substantially in the manner you have described your use of them?

A. Yes, sir.

Q. State whether or not the seed could be crushed by passing it over and over through what is called the old method of rollers—that is, two rollers situated side by side with set-screws.

A. I think it could be done.

Q. Would the same result be produced as passing it through a stack of rollers one above another?

69 A. I think so, with the proper application of pressure.

Q. You have read the specifications of complainant's patent set out in this bill?

A. I have.

Q. State whether or not the feeding of the seed under pressure to the revolving rollers, as described in those specifications, is an essential part of the process.

A. I think not.

Q. Can the seed be fed under pressure, as described in those specifications?

A. I do not see how it can, unless he means the pressure of rollers in their revolutions.

Q. That is the pressure which crushes the seed?

A. One against the other in drawing it in, unless he calls that suitable pressure.

Q. I understand you — the seed cannot be fed—that is, carried direct to the roller—and come into contact with the crushing-rollers under the pressure described in this patent?

A. I do not see how it can be.

Q. As a matter of practice how is the seed actually carried or brought into contact with the crushing-rollers?

A. It is fed into a hopper through a spout, and by means of fluted or corrugated rollers—

Q. I mean what is it that brings the seed into contact with the rollers?

A. Fluted or corrugated rollers.

Q. Is not there something beyond the fluted roller that carries the seed directly to the crushing-rollers?

A. Not that I know of.

Q. I refer to an inclined plane or spout.

A. From roller to roller it is carried by an inclined plane; yes, sir.

Q. When it is carried to the first roller?

A. That is carried by the inclined plane.

70 Q. After it is fed out from its receptacle or hopper by the fluted roller it passes down the inclined plane?

A. Yes, sir.

A. C. ABBOTT, called by defense, being sworn, testified:

I live in Marshalltown, Iowa. I am a manufacturer of linseed oil. I have been in that business ten years.

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A. Four.

Q. By what power do you run them?

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Q. Applied to which one of the rollers?

A. First and third, counting from the top.

Q. And the other two run by friction?

A. Yes, sir.

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A. Ten years.

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Q. When and where?

A. By I. & C. More & Co., in Jersey City.

Q. At what time?

A. I first knew of their being used in 1872. They have been used there a long time prior to that; just how long I can't say.

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A. Yes, sir.

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A. No, sir.

Q. Have you known of the use of those rollers—of that method of crushing—by any one else?

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Q. It was run substantially in the manner you have described your use of them?

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A. From roller to roller it is carried by an inclined plane; yes, sir.

Q. When it is carried to the first roller?

A. That is carried by the inclined plane.

70 Q. After it is fed out from its receptacle or hopper by the fluted roller it passes down the inclined plane?

A. Yes, sir.

Q. And that is what brings it into immediate contact with the pressure-roller?

A. Yes, sir.

Q. What method of steaming or wetting the crushed meal do you use?

A. Water.

Q. How is it applied?

A. On the muller-bed under the stones.

Q. Have you ever known any other method to be used?

A. I have known of the application of steam instead of water.

Q. State when and where.

Objected to as incompetent under the pleadings.

A. In 1872, at the factory of I. & C. More & Co., Jersey City. Mr. Force, who was the manager of the concern, was then experimenting in the use of steam instead of water, with a view to doing away with mullers. I investigated the matter, with a view of adopting it myself, but did not do it.

Q. What was his method?

Objection repeated.

A. He had some apparatus which he was experimenting with, introducing a spray of steam into the meal, fed in any manner that he saw proper. That was the introduction of steam spray into meal.

Q. What was the particular mechanism you used for that purpose?

Objected to.

A. It was a tub with a steam-coil inside of it.

Q. How was the meal stirred or different courses of the meal brought into contact with the steam?

Objected to.

71 A. It was so long ago I am not quite certain as to the device employed to stir the meal. My impression is, however, that in the mill he was using he employed the apparatus turned in some way, or made to revolve. This coil of pipe had small perforations through which the steam was ejected into the meal. This apparatus was somewhat crude. He was experimenting himself, then, to determine upon a plan he might adopt afterwards.

Q. Was he practically applying it to the manufacture of oil?

A. I understood him that he was intending to do so, and I think he did so afterwards.

Q. Did you see the contrivance in operation?

A. Yes, sir.

Objected to as immaterial.

Q. Was he manufacturing oil out of the meal that he used in that steam-heating arrangement that you saw used there?

A. Yes, sir; he was making oil with that process, and making his test from the product which he got.

Q. Do you know anything about the comparative yield of oil by this Lawther process and by the old process that you used?

A. Not from my practical experience, I do not.

Q. Do you in any way know about the comparative yield?

Objected to.

A. Yes, sir.

Q. What do you know about it?

Objected to as incompetent and not the best evidence.

A. I think with careful manipulation and superintendence in the working of the mill the results are very little different, if any, so far as the yield is concerned.

72 Q. What as to the comparative value of the cake produced by the two processes?

A. Their value as a feed? I think there is no difference.

Q. State whether you have made any tests of the cake produced by the two processes.

A. Yes, sir.

Q. What was the result as shown by those tests?

A. The cake known as the broad, thin cake, in the tests which I have made, has shown the best results as to the yield of oil from the cake produced by what is known as the Callahan process. I made tests of oil produced by all known processes that make what is known as the broad, thin cake, and I find no difference materially; of course I have reference to the cake that is well made.

Q. What is the result of comparison between the cake that you produced in your mill and cake produced by what is called the Lawther process?

A. I could not tell you because I never made any recent test.

Q. Have you ever tested cake produced by the Lawther process?

A. Yes, sir.

Q. Have you compared such cake and the cake you produced in your mill?

A. Yes, sir.

Q. Is there any difference?

A. I cannot see any.

Q. In the yield of oil or value of the cake?

A. Neither.

Q. From what mill did you get the cake produced by the Lawther process?

A. I got some from the Northwestern, and Wright and Lawther's mill—both.

Q. What kind of press do you use?

A. More press.

Q. Have you any practical knowledge of any method of extracting oil from seed in any other way than by crushing the seed

73 under pressure as the first step in the process?

A. No, sir.

Q. Is not that essential as the first step in any process of extracting oil from seed?

A. I so regard it.

Q. And is universally used?

A. Yes, sir; so far as my knowledge goes.

A. And the oil is always finally extracted or separated from the mass of crushed seed by pressure under presses, is it not?

A. Yes, sir; hydraulic pressure.

Q. That is essentially the process of separating the oil, whether it is applied by one form of mechanism or another, is it not?

A. Yes, sir.

Q. What do you use for heating the meal after you have applied the water under the muller-stones?

A. A heating apparatus with an air space into which steam is injected.

Q. What has been called a steam-jacket reservoir?

A. Yes, sir; it answers that purpose, although shaped a little differently from those usually used.

Q. Where is the air space?

A. The apparatus is shaped like a hat; the air space is around the rim.

Q. Is the hat right side up?

A. Yes, sir.

Q. Is the air space at both the bottom and side of the reservoir?

A. We can turn it on top if we want to. It has two distinct reservoirs.

Q. The air space around the sides is separate from the air space on top?

A. Yes, sir.

Q. There is one on the bottom but not on the top?

(Witness illustrates.)

WITNESS: The meal is fed in on top of the hat as I hold it in my hand, and the muller-stones travel on top of the hat amongst the meal, and it feeds off over the crown of the hat upon the rim, and is warmed either at the crown or at the rim, as we see fit,
74 by admitting the steam into two separate air spaces, one air space located under the crown and one under the rim.

Cross-examination waived

Counsel for defendants here offers in evidence a printed copy of the specification and drawings of letters patent No. 129,018, dated July 16th, 1872, issued to William B. Fisher, Newark, New Jersey, for an improvement in seed-steaming apparatus.

Counsel for complainant admits that the same is a correct copy of the specification and drawing of said patent, and waives the production of certified copy of the letters patent.

(Marked Exhibit A, as follows:)

(Here follows diagram marked p. 75.)

Exhibit "A"

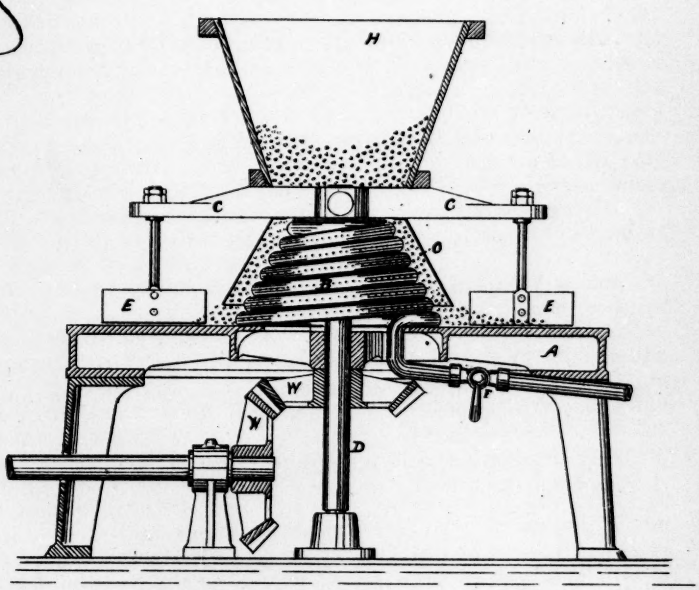
75

W. B. FISHER.

Improvement in Seed-Steaming Apparatus.

No. 129,018. Patented July 16, 1872.

No. 310.
Lawther
v.
Hamilton
} p. 45



J. M. Brame
G. H. Pibbetts

William B. Fisher
By his Attorney
John Dane Jr

76 129,018.

UNITED STATES PATENT OFFICE.

WILLIAM B. FISHER, of Newark, New Jersey.

Improvement in Seed-Steaming Apparatus.

Specification forming part of Letters Patent No. 129,018, dated July 16, 1872.

To all whom it may concern:

Be it known that I, William B. Fisher, of the city of Newark, county of Essex, in the State of New Jersey, have invented a new and useful process for preparing seeds for storing and for the operation of pressing; and I do hereby declare that the following specification, in connection with the drawing furnished, is a full, clear, and exact description thereof, that will enable others skilled in the art to make and use the same.

The nature of my invention consists in constructing an apparatus for treating oleaginous seeds and nuts, so that the latter may be in continuous motion while undergoing treatment, passing over the sides of an inclined or conical steam-coil, provided with small holes, from which issue jets of steam with a sufficient force to permeate and cleanse the entire mass. A jacket is provided for partly confining the steam during treatment for the press, and a screen when treating the seed for storage or shipment.

To enable others skilled in the art to make and use my invention, I will describe its arrangement and operation.

A is a bed or base; B, a steam-coil; C, extended arms secured to a rotating shaft, D, with scrapers E E attached; F, a stop-cock for admitting steam to the coil; H, a hopper to guide the seed to the top of the coil; O, a close jacket or wire screen surrounding the same. The steam-coil B is provided with numerous small holes (indicated in the drawing by the dots) countersunk slightly to cause the escaping steam to spread that it may thoroughly permeate the mass of seed moving over the same from above to the table, where it is removed by the scrapers E E. The scrapers E E are so connected to the arms C that they may be adjusted to an incline to clear the seed from the table rapidly or slowly at the will of the operator. They may be made of sheet metal or wood. Steam is conducted to the coil from a boiler in the usual manner. Power is transmitted to the shaft D, which carries the arms C C and scrapers E E, in the usual way. The close jacket O, for convenience, is made of sheet metal, and is used to partially confine the steam, when desirable, in order to add moisture to the seed to fit it for the operation of pressing. For cleansing and drying the seed a perforated jacket or wire screen may be used, which allows the steam to pass through and off rapidly, carrying with it the impurities and excess of moisture previously contained therein, leaving the same sweet and thoroughly cleansed. In preparing for storage or shipment it is considered preferable to use steam at a pressure of about sixty pounds, as its force when issuing from the small holes in the coil

does the cleansing and removes all objectionable accumulated matter, while the high temperature accomplishes the drying. Thus the causes of fermentation are removed, a source of so much trouble in packing and storing in bulk.

For the operation of pressing a lower temperature will suffice, as moisture is desirable to be added in such case to soften the vegetable fibers of the seed and liquefy the oily parts, so that the separation of the one from the other is easily accomplished.

Having thus described my invention, what I claim, and desire to secure by letters patent of the United States, is—

1. The combination of the hopper H, perforated conical steam-coil B, jacket O, shaft D, and rotating arms C C, carrying scrapers E E, constituting an improved apparatus for treating oily seeds, as and for the purpose herein set forth.

2. The improved method of cleaning and drying oleaginous seed by feeding the same over the inclined surface of a perforated conical steam-coil, substantially in the manner described.

WILLIAM B. FISHER. [L. S.]

Witnesses:
JOHN DANE, JR.
WILLIAM T. ALLING.

77 Counsel for the defendants also offers in evidence a printed copy of a specification and drawing of reissue No. 129,018, said reissue being issued to William B. Fisher, of Newark, New Jersey, for an improvement of methods and apparatus for treating seeds.

Counsel for complainant admits that the same is a correct copy of the specifications and drawings of said patent, and waives the production of certified copy of the letters patent, but objects to the reissue of patent as incompetent.

(Marked Exhibit B, as follows:)

(Here follows diagram marked p. 78.)

79 UNITED STATES PATENT OFFICE.

WILLIAM B. FISHER, of Newark, New Jersey.

Improvement in Methods and Apparatus for Treating Seeds.

Specification forming part of Letters Patent No. 129,018, dated July 16, 1872; Reissue No. 8615, dated March 11, 1879; application filed February 19, 1878.

To all whom it may concern:

Be it known that I, William B. Fisher, of the city of Newark, Essex county, in the State of New Jersey, have invented a new and useful process and mechanism for preparing seeds for storing and for the operation of pressing; and I do hereby declare that the following specification, taken in connection with the drawings forming a part thereof, is a full, clear, and exact description of my said pro-

Exhibit "B."

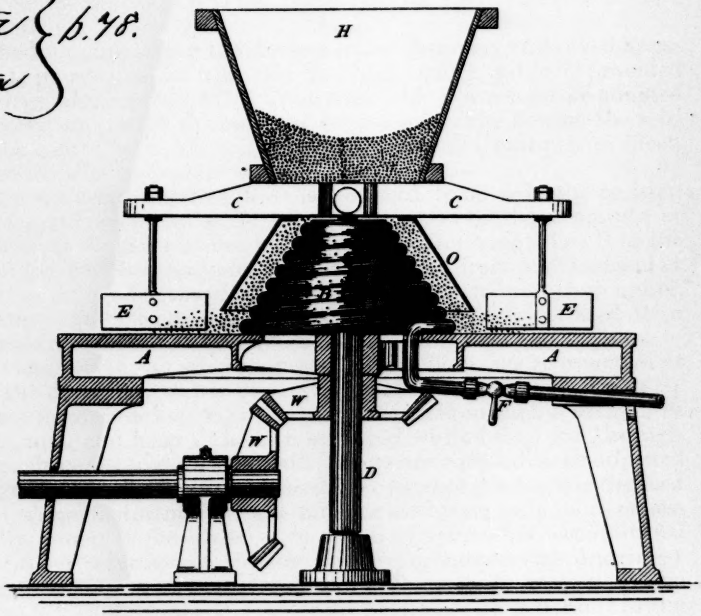
78

W. B. FISHER.

Method and Apparatus for Treating Seeds.

No. 8,615. **Reissued Mar. 11, 1879.**

No. 310.
Lauther
v.
Hamilton
} p. 78.



Attest:
D. G. Stuart
Wm Beale Hale.

Inventor:
Wm B. Fisher
by
Wm H Babcock
Attorney

cess and mechanism, such as will enable others skilled in the art to practice the same.

My invention consists, in part, in subjecting oleaginous seeds and nuts to the direct action of steam directed and applied within or about the center of the mass of said seed, the motion of the latter being checked or regulated at will by suitable means.

My invention further consists of the mechanism preferably employed in the process, comprising a seed-receptacle, a steam-reservoir adapted to eject steam or moisture within or near the center of the moving seed, a table, and stirrers, said table being arranged to sustain the weight of the mass of seed and check their downward motion, and said stirrers being arranged to regulate the rapidity of such motion by removing the accumulated seed more or less speedily or completely. Said mechanism is more fully described hereinafter.

To enable others to practice my invention I will describe it more in detail.

A bed for supporting the devices which form my improved apparatus is represented at A in the drawings, which table is provided with legs, also represented. Upon said table is a receptacle adapted to receive and retain the seed to be treated. The flow of the seed may be controlled at the will of the operator, the manner of effecting which will be explained hereinafter.

At or near the center of the mass of seed to be or in the position to be treated, or to be subjected to the action of the steam-jets or moisture, is located a steam pipe or receiver (represented at B in the drawings), which is provided with small holes, from which steam or moisture is forced outwardly in such a manner as to more thoroughly, uniformly, and effectually permeate the moving mass of seed than has been accomplished heretofore by other means.

Devices serving as stirrers or scrapers, or both, are represented at E in the drawings, which stirrers are adapted to rotate horizontally and act in conjunction with the seed-receptacle in such a manner as to stir, mix, and keep in motion said seed while being fed through the machine for treatment. Said stirrers are adapted to be adjusted at a greater or less inclination to the seed-receptacle to clear the seed undergoing treatment from the table or seed-receptacle more or less rapidly, as may be found desirable, which adjustment is accomplished by means of a screw-nut or screw-nuts (represented in the drawings). A vertically-arranged revolving shaft, D, imparts motion to the stirrers. Steam or moisture is conveyed from the generator to the reservoir by any suitable means.

The lower part of the seed-receptacle (represented at Q), adapted for partially confining the seed and steam when the softening and moistening process is required for pressing or other purposes, may be removed and a perforated or screen jacket substituted in lieu thereof. By the employment of the latter the steam may be forced directly through the moving seed and screen-jacket in such a manner as to cleanse it and remove and carry away all impurities and excess of moisture previously contained therein.

In preparing seed for shipment or storage I consider it preferable to use steam at a pressure of about sixty pounds, as its force, when

issuing from the small holes in the reservoir, does the cleansing and removes all objectionable accumulated matter, and the high temperature accomplishes the drying. Thus the causes of fermentation are removed—a source of so much trouble and loss in packing and storing in bulk. For the operation of pressing a lower temperature will suffice, as moisture is desirable to be added in such cases to soften the vegetable fibers of the seed and liquefy the oily parts thereof, so that the separation of the one from the other is more easily accomplished.

Having thus set forth my invention, I do not wish to be
80 understood as claiming broadly the art of treating seed by steam; neither do I wish to be understood as claiming broadly all mechanism with which steam may be used for treating oleaginous seed, irrespective of the construction, arrangement, and operation of the same, as I am aware that steam has been employed heretofore for the purpose of treating seed.

I am also aware that mechanisms of different kinds and modes of operation have been used in connection with steam for a like purpose, one of which is a boiler provided with a steam-inlet at its top, a stirrer, and a cover for the whole. The seed to be treated being placed therein, the cover is closed and the steam or hot water admitted. It has been found in practice difficult to thoroughly and uniformly permeate a mass of seed so confined with the steam introduced at the top, and condensation with an excess of moisture has been the result, which is objectionable and desirable to avoid. Such apparatus I do not claim. Neither do I claim a steaming device (adapted to convey seed to grinding-stones) consisting of a tube and a revolving screw therein, which carries the seed over a perforated chamber formed upon its lower side. These also are old; but

What I do claim, and desire to secure by letters patent of the United States, is—

1. The herein-described method of treating seed, consisting in allowing it to flow downward around a central perforated steam-reservoir, and forcing jets of steam from said reservoir outward through the mass of seed, the flow of said seed being regulated by stirrers, substantially as set forth.

2. The combination, with a seed-receptacle provided with a perforated steaming device, arranged within or below the material operated upon, of devices for stirring its contents at will, said devices operating upon a platform, substantially as and for the purposes set forth.

3. In combination with a seed-receptacle for holding the seed while being steamed, means for directing the steam into said seed, and horizontally-rotating stirrers adapted to regulate the flow of said seed, substantially as set forth.

4. An apparatus for treating oleaginous seed by steam, consisting of a receptacle adapted to receive and retain the seed at will, a steaming device adapted to be surrounded by said seed and eject steam in different directions outwardly from within the mass, and rotating stirrers, substantially as described, whereby said seed may be thor-

oughly permeated by said steam, substantially as and for the purposes set forth.

WILLIAM B. FISHER.

Witnesses:
JOHN DANE, JR.
WM. W. FORCE.

81 Recess until 2 p. m.

C. S. HAMILTON, called by defense, being sworn, testified:

I am one of the defendants and reside in this city.

Q. What is your business?

A. Manufacturer of linseed oil. I have been engaged in that business twenty-nine years—since 1853.

Q. At what places?

A. In the city of Fond du Lac and in this city.

Q, During the period you have mentioned has that been your principal business occupation?

A. It has.

Q. You have yourself given your personal attention to it?

A. I have.

Q. You have become familiar with all the details of the subject?

A. I believe I am familiar with the different kinds of ma-
82 chinery used and the different processes of extracting the oil.

Q. State whether or not you have made it a subject of special study and investigation.

A. I have for a good many years.

Q. In the extraction of oil from vegetable seeds state what, in your view, are the essential steps required for reducing the seed to oil or extracting the oil from the fibre of the seed.

A. The first is to destroy the cellular structure of the seed. An examination of the interior of oil-bearing seeds by a powerful microscope shows the structure to be cellular, and the oil to be distributed in very minute cells uniformly through the interior of the seed. The more thoroughly this cellular structure is destroyed the more easily the seed yields its oil and more completely. The next step in the process is the proper moistening of the crushed seed or meal. Water in some form is necessary for the extraction of the oil. It operates in two ways: First, by a uniform distribution and subsequent heating the texture of the cells is broken, and if any of the cells are unbroken in connection with the crushing process they will yield oil more readily if thoroughly softened by the water. The other necessity is the application of water and heat in order to make the oil thin and allow it to flow out freely, the water in a certain measure taking the place of the oil in the seed, thus liberating the oil. Then the next step is the heating of the meal for the purpose of driving off a certain portion of the moisture that had been communicated to the seed either by water or steam. If the meal be too moist it cannot be confined in any of the bags or mats that are in use in hydraulic pressure; it must be heated and stirred to a given degree of dryness which will enable it to "set" under press-

83 ure. If this dryness be not obtained the meal in its softened state will gush out in every direction.

Q. Like thin mush, I suppose?

A. Yes, sir; no bags or mats will confine it. The next and last step in extracting oil is the application of pressure to this meal after it has been sufficiently dried. There are many different kinds of machines used to produce these different results, but the general plan of crushing the seed, moistening, heating to a certain degree of dryness for pressing, are each essentials in the process, which cannot be completed without each one of them—that is, cannot be perfectly completed. Now, to go back to the first step of crushing. I began business in 1853. The system of crushing seed at that time, almost universally, I believe, in this country, was to crush it between two horizontal rollers set side by side, one fixed and the other pressed against it by means of screws or wedges, the seed being fed to these rollers by means of a small fluted roller, which, taking up along its whole length an equal amount of seed in every portion of it, in its revolutions dropped that seed evenly so as to be taken by the rollers and crushed. Gradual improvements in machinery for making oil gave rise to the increase in length and diameter, and consequently of the surface of these rollers. The smaller the rollers the less amount of capable work could they do. For many years I knew of no other system being used for crushing the seed than these two rollers. Afterwards a study of the process of extracting oil led different persons to believe that a more thorough crushing of the seed than could be given by two rollers at a single crushing could be effected by increasing the size and length of the rollers—diameter and length. In this way the rollers have been increased in size

84 more or less gradually and in length, until to-day the common mode of crushing seed is to pass the seed between a number of rollers lying one on the top of the other, forming a stack or wall of rollers, the seed passing through each two of the rollers, being crushed within once as many times as there are rollers. If there are four rollers it gets three crushings; if five, four; and so on. The usual mode of moistening seed until within comparatively a few years was, after crushing, to transfer it to a bed-plate on which ran a couple of muller-stones running around a vertical shaft on their edges. While under the stones a certain amount of water is applied to the meal. That meal is stirred by means of scrapers as the stones revolve, and the effect of the stone passing over the meal will be to distribute the water evenly and uniformly through the mass of meal. I have never used the mullers with the object of grinding. I have never used them except where they would, even after they were discharged to the extent the scrapers would empty the meal, run upon a bed of meal from one to one and a half inches deep that would be permanent; any meal placed on top of that would not be subject to any grinding process; there would be, being under the weight of the stone and under the peculiar motion given to them by running around the vertical shaft, a tearing process, which would be sufficient to break into meal any seed that had simply been crushed and still adhered as flattened seed. For a great many years

no other or no better process of mixing the water thoroughly and uniformly through the meal was known in this country to exist. Subsequently various devices have been put in use for moistening meal equally throughout, either by means of water or steam. After this moistening the meal is transferred to a steam-jacketed
85 heater. These steam-jacketed heaters I have used since 1864; the first one I ever used being made of boiler iron, the top, or rather the sides, and bottom separate, and fed with steam separately.

Q. That is, you mean the spaces for the steam are separated at the sides and bottom?

A. Yes, sir; they had no connection with each other, except as round about through the steam pipe. This steam-jacketed heater had been in use for some years before I put it in use. I saw it in Chicago, I think, as early as 1862—possibly earlier.

After the heating and drying of the meal in this heater it was transferred to hydraulic presses, the general principles of the working of which are the same in all cases. Under this pressure, the meal having been reduced to its proper condition to yield oil freely, it is removed, and the refuse, after the pressure is removed, is known as oil-cake. I have always used water for the moistening of the meal, and I still use it. The presses which I use are presses which were made in 1860—four presses, two made in 1860 and two in 1863. They have been changed in no essential particular except the boxes, which make a different form of cake.

Q. To go back now to the crushing part of the process, up to what time did you use the old or horizontal crushing-rollers?

A. I used these until a year since.

Q. What did you substitute for them then?

A. The first substitution for a single pair of rollers was the adding of an additional pair of rollers—two pair of pinch-rollers, one above the other. The seed first passed between one set and then the crushed seed was passed to another set.

Q. What did you use next after that, if anything?

86 A. A set of five rollers purchased of the complainant in this action, or of his agent and with his consent, he knowing of the transaction.

Q. Is that set of rollers of the kind that Mr. Lawther described in his testimony taken in this case as a part of his process?

A. The same.

Q. Those you still use?

A. We are not using rollers made by Lawther or by his agents, but we use the same method. We substituted rollers made by another man, perfect duplicates of his rollers.

Q. State the circumstances of the transaction with Mr. Lawther or with his agent, as you call him, in reference to the purchase and use of those rollers.

A. The first step of the transaction was a written contract with Mr. Lawther's partner, as I understood him to be—McDonald, of Chicago, by which he was——

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Q. State the circumstances of the transaction with Mr. Lawther or with his agent, as you call him, in reference to the purchase and use of those rollers.

A. The first step of the transaction was a written contract with Mr. Lawther's partner, as I understood him to be—McDonald, of Chicago, by which he was——

Objected to.

Q. Have you that contract?
A. It is at the mill.

Complainant's counsel objects to the witness giving the contents of the contract.

WITNESS: We will furnish the contract.

Q. State whether or not you use the process described by Lawther in his testimony, and claimed as covered by his patent, for the direct subjection of crushed seed to steam?
A. We do not.
Q. Have you ever used that?
A. We never have.
Q. State whether or not you saw the models produced by the complainant upon the taking of his proofs in this case and referred to as exhibits by their numbers in the testimony?
A. I saw them.
Q. Did you examine closely the construction of the model "Exhibit 4," testified to by the witness McDonald as being a representation of the heating and moistening apparatus which you used?
A. I did; yes, sir.
87 Q. State whether or not that model, "Exhibit No. 4," does represent the apparatus which the defendants used for moistening and heating the seed.
A. It does not represent the apparatus for moistening the seed.
Q. State wherein it differs from the apparatus which the defendants used.
A. The apparatus exhibited there was supposed to represent an apparatus which would carry a jet of steam and a stream of water into a tube, from which tube both were supposed to be ejected; whether it would make a spray or not I don't know, never having used anything of the kind or seen it in operation.
Q. Do I understand you to mean that that model represented that the steam and the stream of water were united before emerging from the tube and being thrown onto the meal?
A. Yes, sir.
Q. How does that differ from the apparatus which the defendants use?
A. We use a jet of water fed from a tank overhead, the jet playing perpendicularly, being met directly at its exit with a jet of steam coming from another tube, the action of the steam being to break the water into a spray of very minute particles, and spread it upon the meal before it goes into the mixer. The steam is thoroughly condensed on meeting the jet of water, and unless playing in an unusually large volume there is no sensible degree of warmth to the spray after the steam jet meets the water jet.
Q. What becomes of the water jet?
A. It is broken into a spray by the steam and thrown upon the descending column of meal—descending sheet of meal.

Q. Where does that meal come from?

A. Comes through a series of spouts which take it from the elevator in the story overhead and falls down past this jet or
88 spray, discharging into the mixer, which is above the heater.

Q. At what angle does this column of meal fall to the jet or spray of water—scattered water?

A. It falls nearly vertically; there is a slight inclination to the spout which discharges the meal into the mixer.

Q. Then it is almost at right angles to the general direction of the spray?

A. Yes, sir.

Q. State whether or not the sketch made and shown you here is substantially a representation of your contrivance as you have described it.

A. It is, as I understand, the working of the spray. It conveys the idea to my mind perfectly; I do not know that it would to one unfamiliar with it. The idea there is the correct one.

Sketch put in evidence and marked "Exhibit No. 3."

Q. How long have you used this contrivance for spraying water as you have described it?

A. Something over a year; possibly a year and a half.

Q. Do you know of its use by others?

A. I do; yes, sir. I know that has been used by Gebhardt & Co., of Dayton, for several years. I know it was used by Daggett & Harper, of Ottumwa, Iowa, who have a patent upon this spray, being the assignees of the inventor or the claimed inventor.

Q. Before you used this present contrivance what did you use for wetting the meal?

A. A spray in connection with the muller-stones—spray of water simply.

Q. You had always used that previous to this recent use?

A. Yes, sir.

Q. State whether or not you have ever used the process of direct subjection of the ground seed to steam as described by Lawther in his testimony, and as claimed by him under these letters patent in this case?

89 A. I have not.

Q. Is it possible for the muller-stones to have any grinding effect, as asserted in the specifications of these letters patent?

A. They would have a grinding effect if the amount of meal placed under the action of the stones was very small, so as to bring the mullers themselves and the bed-stone very nearly into contact.

Q. As a matter of practice, how was it?

A. As a matter of practice, I believe it has been almost the universal custom to leave a bed of meal underneath the muller-stones and on the bed-stone so as to keep the mullers some distance away from the bed-stone or from contact with the bed-stones.

Q. How far?

A. An inch to an inch and a half. That body of meal would prevent any grinding process.

Q. What is the action of the mullers on the meal?

A. The first action is to distribute the water that is put into the meal by pressing and continually passing over, distributing the water evenly and uniformly through the meal; secondly, by the motion—I don't know whether I can explain it exactly, but there is a twist to the line of contact of the muller with the bed of meal in passing around, which would make a tearing motion, and seeds which were unbroken, which were crushed but unbroken in the rollers, would be torn apart under the mullers, but the particles themselves would be rendered no smaller or finer. We have never used the mullers for any other purpose than to mix the water evenly and uniformly through the meal, and when we adopted the spray we threw aside the mullers as being unnecessary.

Q. Do the mullers produce a pasty condition, as asserted in the specifications?

90 A. They would if used long enough on meal unsupplied with water.

Q. Can that be rectified?

A. The addition of water brings it back to its original dry or mealy condition.

Q. Is there any rule or principle about the application of moisture to this meal? Is it anything more than a matter of practice and skill that may be applied by any manufacturer?

A. No, sir; we want enough to make it work thoroughly, and little enough so the time consumed in drying off and heating it will not interfere with the action or running of the other machinery.

Q. Does not the quantity of moisture vary with circumstances, the condition of the seed, and various other such practical details of the business?

A. It does. We often use seed that requires no moistening; other that is thoroughly dry, which requires a good deal of moisture. It then becomes a matter of practice and skill on the part of the operator as to how much moisture should be properly applied.

Q. State whether or not you have made tests as to the comparative products of these different modes of manufacture of oil.

A. I have been in the habit of making tests, not only of our own yield of oil and of the oil contained in the cake, but testing the products of other mills—the cake of other mills—as to the oil contained.

Q. Compare your product with the product by the Lawther process?

A. Our product as it is now, or has been in the past?

Q. Whichever way you have made your comparison.

A. We consider now that our cake is as free from oil as any that is made by hydraulic pressure.

Q. How was it before you adopted the Lawther rollers?

91 A. When we used the single pair or pinch-rollers the yield could be made equally good by diminishing the amount of work the rollers were required to do in a given time; and when we used two sets of pinch-rollers, one above the other, the result in the yield of oil was fully equal to anything we have worked since.

Q. You have compared the product that you made with the two

sets of pinch-rollers with that you have made with the set of Lawther rollers?

A. Yes, sir.

Q. And you state your cake was as free from oil—that the yield of oil was as great by the use of the two sets of pinch-rollers as by the set of Lawther rollers you are using?

A. Quite as good; there was no essential difference. Sometimes, from the manner of working, a slight difference in the product will arise under any method of manufacture, from differences in the quality of the seed, and from differences in the working, the process of working, the application of too much heat or too much moisture. It is a matter of great importance that the operator shall be a man of experience and judgment, and capable of breaking just the quantity of seed that is to be fed, of moisture that is to be used, of heat that is to be applied.

Q. Did you hear the testimony of witnesses for the complainant as to the amount of saving produced by the Lawther process?

A. I did.

Q. So far as your knowledge goes, state whether there is such saving.

A. Well, there is a saving in proportion as the seed is evenly crushed, other parts of the operation of extraction being equal. The primal element of success is the thorough crushing of seeds. One set of pinch-rollers would not do it as thoroughly as a stack of five rolls; five rollers would not do it as thoroughly as a stack of
92 four rollers, provided the five rollers were allowed to get out of order, while the four were kept continually in condition.

Q. Can the seed be as thoroughly crushed and ground under the old process, properly applied, as by the Lawther process?

A. By the old process you mean two pinch-rollers?

Q. Yes, sir; or any modification of that style of rollers.

A. If ground the same number of times in the old pinch-rollers as as ground in the Lawther rollers, the result would be fully equal under any circumstances.

Q. State whether or not there is any difference in the mechanical principle between the old method of pinch-rollers pressed together by set-screws and the method described by Lawther as part of his process, rollers lying one above another.

A. I know of no difference in principle; both are operated under pressure, the pressure in the one case being horizontal and applied by screws or wedges; in the other by pressure-belts and the weight of the rollers.

Q. State whether or not you ever knew of any method of crushing of the seeds under pressure, which is a part of the claim put forth in Lawther's patent.

A. I will answer that by saying that seed cannot be crushed except by pressure. I have known seed crushed and worked without the operation of rollers, or without the operation of muller-stones, and without the operation of hydraulic pressure. Many years ago there was in operation in this State two small mills, one operated at

Manitowoc by William Rahr, and another one near Sheboygan; the name of the proprietor I don't recollect. I have seen them both in operation at different times. Their mode, which was at that time general throughout the German Empire, was to crush the
93 seeds by means of stamps used as in the crushing of ore, the seed being put into a metallic basin, the stamps operated by machinery, the heads shod with metal, playing up and down until the seed was reduced to the requisite degree of fineness; then heated in an open heater and dried; then subsequently pressed in a wedge-press.

Q. Is it possible to feed the seed under pressure as described in the specification of the letters patent?

A. I don't know how any pressure can be applied other than the action of gravitation to the seed in feeding either the fluted roller or the fluted roller discharging the seed into the crusher-roller.

Q. State whether or not you had any interview with Mr. Lawther with reference to the purchase and use of the stack of rollers in your mill.

A. A number.

Q. When and where? What passed between you?

A. I think the first interview with him was some time—two or three weeks—some little time, at any rate, after the making of a contract for the manufacture and delivery of a stack of rollers after his patent. The matter was discussed between Lawther and myself in Chicago more than once, spending at one time one or two or three hours together, and visiting one of the mills in Chicago, in view of looking at Lawther's rollers in operation. I afterwards saw him and we talked about it. After the set of rollers had been delivered and put in operation at our mill he came up with McDonald, his agent, to examine them, we having complained of their inferior quality. He himself rejected at once two of the rollers and ordered others to be supplied.

Q. What do you know about McDonald being his agent?

94 A. I know that Lawther acknowledged to me that McDonald was building his machinery there, and at one time, I think, he spoke of him familiarly as his "pard."

Q. Were these interviews which you had with Lawther prior to your purchase of the rollers from McDonald *of the rollers?*

A. They were subsequent to the contract with McDonald.

Q. State whether or not anything was said in those interviews upon the subject of your purchase of the set of rollers from McDonald. State the substance briefly.

A. I visited McDonald's establishment and found Lawther there, and the whole matter of the rollers was discussed.

Q. I direct the witness' attention to the point whether Lawther was informed at any time of the contemplated purchase by Mr. Hamilton and Mr. Goodrich of a set of rollers from McDonald.

A. I will answer that by saying that I am not personally aware that Mr. Lawther knew of the written contract, but he knew of the sale to us of the rollers, and of the delivery, and of the subsequent rejection of a portion of them, and their being supplied by others.

Q. When did he first know of the sale and delivery?

A. I cannot answer that; when I made the contract he was out of the State; he probably learned it as soon as he came back.

Q. When did he know it from you?

A. He knew it when I first saw him.

Q. State whether or not Mr. Lawther ever objected to your purchase of these rollers.

A. No, sir; not in any way whatever.

Q. State whether or not he ever claimed to you, verbally
95 or in writing, prior to the commencement of this suit, that your purchase and use of these rollers from McDonald would be an infringement of his patent.

A. In no way whatever.

Q. How many times has Mr. Lawther visited this city upon that subject?

A. I recollect but once; he may have been here twice. I recollect simply now the visit with McDonald; they came up together; came to the mill together and examined the rollers together, and together rejected them; put others in their place, to be made and sent up as quickly as possible.

Q. What did Mr. Lawther then say about those rollers?

A. I cannot say; they were together talking them over; both consented.

Q. What was finally done about those rollers that were purchased from McDonald?

A. The first two, upper two, of the five rollers being rejected by Mr. Lawther, two others were sent in their places.

Q. By whom?

A. By McDonald, Mr. Lawther consenting. Afterwards the whole five were rejected as being of imperfect material, and I am not positive but that ten rollers—eight or ten—were sent us in all, all of which proved to be imperfect. Then, knowing the difficulty under which Mr. Lawther labored in getting his rollers cast in Chicago, the difficulty of getting a proper mixture of materials, the offer was made by us to furnish our own rollers, getting them made elsewhere, purchasing of him the frame on which they ran, the scrapers, etc., and the right to use the same with the other rollers. A bargain was made with McDonald by which we were to pay $450 for that frame in all. $400 had already been paid in cash; $50 further had been expended by us on a set of rollers sent up here which were so imperfectly surfaced that we had to send them to the Bay View Iron Works for
96 resurfacing at an expense of $50, which we paid, and notified McDonald would be charged up to him. He still claims $50 on the rollers, disallowing that $50.

Q. What did Mr. McDonald say to you about this sale of right to use the frame?

A. When the matter of substituting the rollers of another make was brought to McDonald's notice we asked him if he was authorized to sell the frame and the right to use it, use the rollers with it, by Lawther. He said, in the presence of Mr. Goodrich and myself, in our office, that he was so authorized; that he was Mr. Lawther's

agent, and that any sale of the machinery made by him carried with it the right to use the same as thoroughly as though Lawther himself had given his consent personally. Under these circumstances we purchased the iron frame on which I understand there is a patent. Another frame could be easily substituted for that, and other frames are made.

Q. Have you anything else to state about the issues in this case that is material, and which you have not already testified to?

A. I do not think of anything.

Cross-examination waived.

Defendants offer in evidence, subject to the general objection of the plaintiff, the following letters and telegrams:

Letter press copies of —

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Letter, McDonald to Hamilton & Goodrich, December 26, 1881, Exhibit No. 37.

These exhibits are as follows:

JULY 21, 1881.

Mr. Chas. A. McDonald.

DEAR SIR: We want to have all things ready here to set
99 up the rollers on arrival, and to that end we want to know at once the diameter and face of the pulleys on the rollers—and the number of revolutions the rollers required to be given the rollers—so that the counter-shaft and driving-pulleys may be made here at once.

If it be a possible thing for the Northwestern people to let us have the set now under way, and they wait for the next set, it will accommodate us greatly. They can have no objection unless they will need the rollers sooner than you can complete the second set.

Let us have a reply to all these matters at the earliest moment possible.

Truly yours, HAMILTON & GOODRICH.

(Exhibit No. 4.)

agent, and that any sale of the machinery made by him carried with it the right to use the same as thoroughly as though Lawther himself had given his consent personally. Under these circumstances we purchased the iron frame on which I understand there is a patent. Another frame could be easily substituted for that, and other frames are made.

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If it be a possible thing for the Northwestern people to let us have the set now under way, and they wait for the next set, it will accommodate us greatly. They can have no objection unless they will need the rollers sooner than you can complete the second set.

Let us have a reply to all these matters at the earliest moment possible.

Truly yours, HAMILTON & GOODRICH.

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If it be a possible thing for the Northwestern people to let us have the set now under way, and they wait for the next set, it will accommodate us greatly. They can have no objection unless they will need the rollers sooner than you can complete the second set.

Let us have a reply to all these matters at the earliest moment possible.

Truly yours, HAMILTON & GOODRICH.

(Exhibit No. 4.)

AUGUST 10TH, 1881.

Mr. McDonald, Hercules Iron Works, Chicago.

DEAR SIR: Our contract calls for shipment of our rollers to-day, and we shall anxiously await notice of shipment. If there is to be any delay whatever we want to know it, and how long. Our necessities are great, and we hope the rollers are completed. Please advise by return mail and oblige

Yours truly, HAMILTON & GOODRICH.

(Exhibit No. 5.)

AUGUST 17, 1881.

Chas. A. McDonald, Chicago.

D'R S'R: Y'r fav. 16th we have with enclosures as stated. We accepted y'r draft & now enclose our notes for bal. p'r contract for set rollers. Please send us bill sale of the set receipted. The notes you sent us for our signature were filled out with interest, which is not the contract.

100

Y'rs truly, HAMILTON & GOODRICH.

(Exhibit No. 6.)

SEPTEMBER 6, 1881.

Mr. Chas. A. McDonald, Hercules Iron Works.

D'R S'R: You have given us a very bad material for the two upper rollers you sent us. They have run now only part of the time for two weeks and need turning off already, being much honeycombed, and this, too, on seed which has been thoroughly screened and all dust removed that could be removed by the screens.

The iron is very soft and entirely unsatisfactory. Such material does you no credit, and we shall expect you to make full indemnity.

Yours truly, HAMILTON & GOODRICH.

(Exhibit No. 7.)

SEPT. 10TH.

Mr. Chas. A. McDonald, Chicago.

D'R S'R: Y'r disp. rec'v'd and answered; "have written what will be satisfactory for rolls." A new set will be satisfactory if made of hard iron such as you agreed to give us. We find other mills have had rolls that in the first four to six weeks have shown scarcely any wear in the top rolls, the ones that have the hard work. You say two rolls. Now 2 would do for a time, but the lower ones are equally soft & would show wear sooner than they ought to if made of the proper quality of iron. What we want is a set made of the

101

hardest iron that has been used for such rolls, and we hope no unnecessary delay in sending them to us will occur; it is too big an outlay for us to accept anything but the best, as agreed.

Yours truly, HAMILTON & GOODRICH.

(Exhibit No. 8.)

SEPT. 6, 1881.

Chas. A. McDonald, Chicago.

D'R SIR: The set of rollers you made for us we have worked in clean seed equal to one week's time. The upper ones are so honey-combed now they can't do good work. It is evident they are not made of the quality of iron which was agreed by you they should be made of, and are not doing the work you agreed they should do. We now give you notice we shall not pay the two notes we gave in settlement for same until we have a set of rollers that will do the work as agreed. We think we are badly used under the circumstances.

Yours, &c., HAMILTON & GOODRICH.

(Exhibit No. 9.)

OCT. 22, 1881.

Mr. Chas. A. McDonald.

D'R SIR: We are having one pair (two rollers) of chilled rollers made at Wilmington, Del. We propose to use these as the lower rolls, and as they will last two or three years without re-facing the meal will always get a last crushing that will be effectual. Will you please send us a draft of one of your rolls, so that the chilled rolls may be finished up exactly in duplicate. Please send us this immediately, with all the dimensions accurately given. Two
102 measurements made here differ by $\frac{1}{16}$ in the shafts, and so we write to you for draft and measurements that can be depended upon.

Delighted to hear of prospect of new rolls.

Truly yours, HAMILTON & GOODRICH.

(Exhibit No. 10.)

Nov. 2, 1881.

Mr. Chas. A. McDonald.

D'R SIR: As an answer to your inquiry about when and how payments are to be made for the rollers, we respectfully refer you to the terms of our contract, on which you have had the first payment. The second payment will be made 30 days after shipment of the rolls, which thirty days will give ample time to test the rollers. If found to be of such quality as has given satisfaction to the Northwestern Co., then in thirty days thereafter the last payment will be made. We will notify you before thirty days are up as to the work the rollers do, and, if found good, it is immaterial whether you draw on us or we send you a check. We do not propose to hold you for damages if you give us good rollers, as you have been unfortunate as well as ourselves in poor iron.

Yours truly, HAMILTON & GOODRICH.

(Exhibit No. 11.)

Nov. 16, 1881.

Mr. Chas. A. McDonald.

D'R SIR: We will hold you responsible for full damage if we do not get our rollers on or before Saturday, the 19th inst.

You might have relieved us much by sending up those
103 rolls a week ago last Saturday, as promised, for they would have done good work for awhile and cost you nothing for sending. We have now for ten months been trying to get a set of good rollers, and we will not put up with any more delays.

Yours very truly, HAMILTON & GOODRICH.

(Exhibit No. 12.)

Nov. 28, 1881.

Mr. Chas. A. McDonald.

D'R SIR: The new rollers are in place, but will not work. They meet for something more than half the length, but do not touch or come in contact for one-third the length, and are open on one end fully one-sixth of an inch.

They are not true, and seem to be all the same, and allow seed to pass through without being crushed at all for a foot from the open ends. We are compelled to take them out, for they are entirely useless in their present condition. What will you do about it? Answer.

Yours, &c., HAMILTON & GOODRICH.

(Exhibit No. 13.)

Nov. 29, 1881.

Mr. Charles A. McDonald.

D'R SIR: The rollers have been taken out & tested with calipers & straight-edge, and all show inequalities of surface—one is much larger in the middle, several are smaller at one end than the other; not one apparently true from end to end. If these rolls had been placed over each other, or tried with straight-edge or calipers before sending, their being so out of true would have been noticed
104 at once. We cannot get them turned off here. We think your lathe must have been out of order. We have had no chance yet to test the quality of the iron, but it looks as if it were all right. We have either got to be idle or work with the old rolls, which are wholly unfit. What is to be done?

Yours truly, HAMILTON & GOODRICH.

(Exhibit No. 14.)

DEC. 1, 1881.

Chas. A. McDonald.

DEAR SIR: I understand you have been here at the mill this p. m. If you had waited one-half hour I should have found you on my return from Bay View, where I had sent the rollers to be re-turned. I am very sorry not to have met you, for I should have taken you to Bay View at once, so that you could see for yourself. The rolls

are being turned off in a lathe that turns chilled rolls, and the two tools used have a two-inch cut for one, and six inches for the other. The foreman in the lathe-shop tells me there is $\frac{3}{32}$ difference in the diameter at the middle and the end. It is not a screw-lathe. One roll was nearly finished; it will be a perfect job, and I trust will give us no more trouble. Time to turn off one roll, about ten hours, and the expense will not, we think, greatly exceed the freight to and from Chicago.

Y'rs very truly, C. S. HAMILTON.

(Exhibit No. 15.)

DEC. 13, 1881.

Mr. Chas. A. McDonald.

D'R SIR: The rolls came back from Bay View and were
105 started on Friday morning last. They were in perfect condition, as true as possible.

We examined them on Sunday and find they show considerable wear. We hope they will prove all right, but we do not consider the mottled appearance of the iron as favorable to a uniform texture.

We will advise you of the result at the end of this week's use.

Yours truly, HAMILTON & GOODRICH.

The expense of having them turned off was $40, and hauling $8, which we have charged to your account. This is cheaper than to send them to Chicago.

(Exhibit No. 16.)

MARCH 21, 1882.

Mr. Chas. A. McDonald, Chicago.

D'R SIR: We are not yet in receipt of the two notes we gave you on which payment was refused, and the account for which they were given was subsequently settled in another way. Those notes were to have been returned to us on y'r return home after settlement here of the account. Will you please enclose them to us cancelled on receipt of this, and oblige,

Yours truly, HAMILTON & GOODRICH.

(Exhibit No. 17.)

(*Memorandum of Contract.*)

CHICAGO, *July 20th*, 1881.

One complete set of five (5) flaxseed rollers with frame, feed-box, and feed-roller, pulleys, and conveyer, all to be completed by August 10th, 1881, and delivered F. O. B. car or boat in Chicago for the sum of eleven hundred and fifty ($1,150.00), payment to be made as follows: Four hundred ($400) dollars in cash on delivery,
106 four hundred in thirty days from date of delivery, and three

hundred and fifty ($350.00) dollars in sixty (60) days from date of delivery.

HAMILTON & GOODRICH.
CHAS. A. McDONALD.

(Exhibit No. 18.)

DATED CHICAGO, *Aug.* 19, 1881.

Received at Mil. Aug. 19.
To Hamilton & Goodrich:

Man leaves on Milwaukee & St. Paul train at ten o'clock; meet him at train.

CHAS. A. McDONALD.

(Exhibit No. 19.)

CHICAGO, *Aug.* 23, 1881.

Received Aug. 23—9.55 a. m.
To Hamilton & Goodrich:

Get the pulley in Milwaukee and charge to me.

CHAS. A. McDONALD.

(Exhibit No. 20.)

CHICAGO, *Nov.* 22, 1881.

Received Nov. 22—10.54 a. m.
To Hamilton & Goodrich:

Shipped rolls yesterday; have written.

CHAS. A. McDONALD.

(Exhibit No. 21.)

DATED CHICAGO, *Dec.* 1, 1881.

Received at 809 A. B., Dec. 1.
To Hamilton & Goodrich:

Ship rolls at once if not parallel.

CHAS. A. McDONALD.

(Exhibit No. 22.)

107 MILWAUKEE, WIS., *Dec.* 17*th*, 1881.

M——

Chas. A. McDonald, 118 N. Canal, Chi.:

Come up to-morrow morning; arrive eleven thirty, return at one. See rolls—worse than others; dont fail; meet you at mill; answer.

HAMILTON & GOODRICH.

(Exhibit No. 23.)

DATED CHICAGO, *Dec.* 17, 1881.

Received at Mil. 12—17.
To Hamilton & Goodrich:

Telegram received; will meet you as directed.

CHAS. A. McDONALD.

(Exhibit No. 24.)

DATED CHICAGO, *Dec.* 23, 1881.

Received at Milwaukee Dec. 23.

To Hamilton & Goodrich:

Please send draft hundred dollars & rolls as upon—

CHAS. A. McDONALD.

(Exhibit No. 25.)

CHICAGO, *Aug.* 11, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: Your favor of the 10th at hand; will ship you the rolls, &c., to-morrow sure.

Yours very truly, CHAS. A. McDONALD.

(Exhibit No. 26.)

CHICAGO, *Aug.* 16*th*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: Enclosed please find shipping receipt for
108 rolls, etc., shipped you on the 13th. I have this day, in accordance with the terms of our contract, made sight drafts on you for $400.00 and hand you herewith 2 notes, for 30 and 60 days, for your signature; please return them to me by first mail. I have some notes of my own to meet on the 18th and depend on the use of them to help me out.

Yours very truly, CHAS. A. McDONALD.

(Exhibit No. 27.)

CHICAGO, *Aug.* 19*th*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: The bearer, John Nyquist, is the man I have sent you to set up the rolls. He is a good workman and thoroughly understands.

Yours truly, CHAS. A. McDONALD.

(Exhibit No. 28.)

CHICAGO, *Aug.* 23*d*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: In answer to your postal card of the 20th inst. in relation to pulley, I do not know the size of pulley you want, and if you can get the same in Milwaukee please do so and charge same to me. Please send me bill of it.

Yours truly, CHAS. A. McDONALD.

(Exhibit No. 29.

CHICAGO, *Sept.* 21*st*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

109 GENTLEMEN: Your note has been returned unpaid. I need not say that I am surprised, when I know that you have seen for yourselves the efforts I have made to give you good rolls,

hundred and fifty ($350.00) dollars in sixty (60) days from date of delivery.

HAMILTON & GOODRICH.
CHAS. A. McDONALD.

(Exhibit No. 18.)

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GENTLEMEN: The bearer, John Nyquist, is the man I have sent you to set up the rolls. He is a good workman and thoroughly understands.

Yours truly, CHAS. A. McDONALD.

(Exhibit No. 28.)

CHICAGO, *Aug.* 23*d*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: In answer to your postal card of the 20th inst. in relation to pulley, I do not know the size of pulley you want, and if you can get the same in Milwaukee please do so and charge same to me. Please send me bill of it.

Yours truly, CHAS. A. McDONALD.

(Exhibit No. 29.

CHICAGO, *Sept.* 21*st*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

109 GENTLEMEN: Your note has been returned unpaid. I need not say that I am surprised, when I know that you have seen for yourselves the efforts I have made to give you good rolls,

and am ready to do all in my power to make my contract all right. I contract for roll castings at 4c. per pound and at that price should get good material, and I doubt not but the foundry intend so to do, but it is one of those inscrutable facts that cannot be controlled.

The fact of your having another note to pay should have justified you in treating me better, as I have shown no disposition (and have not) to do any injustice to you, but on the contrary shipped you two rolls according to agreement.

I am, yours respectfully, CHAS. A. McDONALD.

(Exhibit No. 30.)

CHICAGO, *Oct.* 19*th*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: In answer to your letter of the 18th inst., if I can get the rolls in the morning (any day) will finish and ship them to you on the evening of the following day.

It will be only a few days now before I shall be able to ship you all your new rolls, as the foundry are now able to give them of the right quality.

They have at last succeeded.

Yours truly, CHAS. A. McDONALD.

(Exhibit No. 31.)

CHICAGO, *Oct.* 31*st*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

110 GENTLEMEN: The draft of rolls has been sent you some days ago, and communication relating thereto "pigeon-holed." I would respectfully state that all your shafts are just of the same lengths and diameter, your measurements being wrong. Expect to ship you a new set of rolls in ten days, which will be the best I have yet made, but would like to have a definite understanding about the payment of same, when and how.

I take this precaution against any future loss by damages, &c.

Yours truly, CHAS. A. McDONALD.

(Exhibit No. 32.)

CHICAGO, *Nov.* 5*th*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wisconsin.

GENTLEMEN: Since you were here I have received from the foundry three rolls, and will be able to ship the five (5) next Saturday. I do not think it advisable to ship you the rolls I have on hand for Mr. Lawther, as I have found two (2) of them defective and would not guarantee them.

Very truly, CHAS. A. McDONALD.

(Exhibit No. 33.)

CHICAGO, *Nov.* 17*th*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: In answer to yours of the 16th inst., the three first rolls I received were extra good; the next were very good, and the remainder extra. I have now got 9 rolls turned and bored, and the

shafts are also turned. I am now turning and fitting bushings and will finish body of rolls to-morrow and next day; will ship
111 the best of the lot to you. The reason of the present delay is a desire to give you the best possible production; all the rolls are now good, but I must give you something extra.

Expect to ship late on Saturday, and, if not, early on Monday.

Yours truly, CHAS. A. McDONALD.

(Exhibit No. 34.)

CHICAGO, *Nov.* 22, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: Enclosed please find shipping receipt of the five rolls shipped you yesterday. These rolls were all finished Saturday and ready for shipment, but I was utterly unable to get a team to haul them to the depot. After getting a truck here the teamster was unable to back his horses up to the door, so that it was until Monday before I could get them hauled.

Yours truly, CHAS. A. McDONALD.

(Exhibit No. 35.)

CHICAGO, *Dec.* 14*th*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: Am very sorry that I was unable to see you when in Milwaukee.

My time was so limited that I was neither able to advise you of my intended visit nor remain longer with you. I saw the rolls and the man turning them at the North rolling-mills.

Please report how you are getting along with them now.

Very truly yours, CHAS. A. McDONALD.

(Exhibit No. 36.)

112 CHICAGO, *Dec.* 26*th*, 1881.

Messrs. Hamilton & Goodrich, Milwaukee, Wis.

GENTLEMEN: In reply to your letter of the 24th inst, upon the 18th of this month myself and foreman called upon you in Milwaukee, and at that time it was thoroughly understood and agreed upon that a final settlement of the roll question should be made in the following manner:

You were to retain the roll-frame upon the payment of the difference between the amount already paid by you on the rolls (viz., $400.00) and $450.00. You were also to return all the rolls (10) except three, which three you were to retain one month, that, you thought, giving you sufficient time to receive your chilled rolls. Enclosed please find bill and statement of your account as it now appears upon my ledger.

My asking you for d'ft of $100 was a mistake and occurred in this way—I was under the impression that it was $350.00 instead of $400 that your account had been credited with.

The enclosed duplicate bill is for putting up the first set of rolls.
Yours truly, CHAS. A. McDONALD.

(Exhibit No. 37.)

(Here follows diagram marked p. 113.)

114 Circuit Court of the United States for the Eastern District of Wisconsin. In Equity.

ALFRED B. LAWTHER
vs.
CHARLES S. HAMILTON & T. W. GOODRICH.

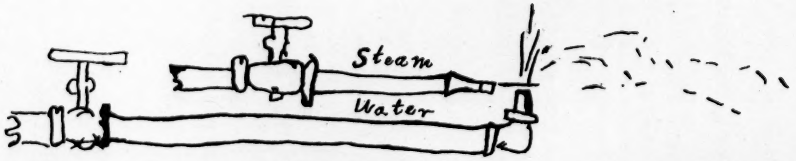
And the said C. KIMPLER, having been first duly sworn to testify the truth, the whole truth, and nothing but the truth, deposes and says as follows, to wit:

Direct examination by Mr. SHEPARD:

1 Q. Where do you live?
A. I reside in the city of Chicago, 2404 Wabash avenue.
2 Q. What is your occupation?
A. Hydraulic engineer.
3 Q. How long have you been occupied in that business?
A. Well, it must be some 16 or 18 years.
4 Q. Have you any practical acquaintance with the manufacture of linseed oil and other oils from seeds?
A. I have had some ten years' practice in linseed oil manufacture.
5 Q. Are you acquainted with the parties to this suit?
A. Yes, sir.
6 Q. Where or in what mills have you had anything to do with the manufacture of linseed oil? Begin with the first.
A. I built the first linseed oil works here in 1863, I think
115 it was, during the war. Some three years after that I built a second mill here. Following that I doubled the manufacturing capacity of the second mill, which belonged to Goold Bros.
7 Q. What next?
A. After that I built a mill in Iowa.
8 Q. Whose was that?
A. That was A. C. Abbott's.
9 Q. Do you mean you fitted them out with their plant and machinery?
A. Yes; previous to the Iowa mill, between that and Goolds' mill, I built part of a mill down where the Goolds mill was burned down at the time of the big fire in Chicago.
10 Q. Did you, during any of this time, have anything to do with the practical manufacture of the oil, or did you only set up the mills and start them running?
A. Yes; I was in the capacity of millwright in the construction of the mills. Afterward I was employed as superintendent of these works.
11 Q. In each mill?

Defendants' Exhibit 3

No. 310.
Lawther
v.
Hamilton
p. 113.



A. Yes; I had charge of the manufacture of linseed oil and its preparation for market.

12 Q. All of these mills in Chicago or only one of them?

A. In all of them.

13 Q. What process or mode of manufacturing was adopted in these mills?

A. Excepting the last one that I built here in the city
116 after the big fire, mullers; after that the muller was dropped.

14 Q. Describe the general features or successive steps of the process adopted in all these mills except the one you say you rebuilt after the big fire.

A. Well, the first operation necessary to get any oil out of the seed is to crush it; and the beginning of doing that—the means of doing it—is the use of having iron rollers; the seed passes through these rollers.

15 Q. I want you to give the mode—how this thing is accomplished.

A. In the first place it passes between these rollers and becomes crushed; passed from these to the muller-bed, where these heavy stone roll over it. That is the process of preparing it for the press. It is moistened and pressed to squeeze it up like a sponge with water. And in not using the muller the process is cut short. The use of the muller, I understand, is nothing else than in preparing it for the press—moistening it and warming it up. I believe that the theory is that the linseed meal absorbs the water to the exclusion of the oil.

16 Q. After the crushing by the rollers, do I understand you that the next step was moistening it?

A. Yes, sir.

17 Q. Where?

A. On the muller-bed.

18 Q. And the next step after that?

A. It appears that the muller was simply to squeeze it.

117 19 Q. What was the next step after it passed through the muller-bed?

A. It passed from there into a kind of trough in order to get a small quantity.

20 Q. And from there?

A. It went from there into the molding press; it was sufficiently tempered to be prepared for the press.

21 Q. Are you acquainted with the process or mode of manufacturing sometimes called the Lawther process?

A. I have seen some of it; yes, sir.

22 Q. What do you know, if anything, with reference to the disuse of the mullers or muller-stone in the process of manufacturing the oil?

A. I have not a very extensive practice without the use of the mullers. This mill that I constructed from the ruins of the great fire the mullers were not used. I put that up and there dropped the mullers. It looked to me a little more thorough preparation, agitating to receive the moisture, and all this sort of thing—to prepare for the press.

23 Q. When, to your knowledge, were mullers first disused or thrown aside?

A. To the best of my memory it was in March—the latter part of March—or the very first of April; my remembrance is now it was March, 1872, following the great fire of 1871.

118 24 Q. Who originated that feature, that mode of manufacturing, namely, not using the muller-stone?

A. So far as was known at that time and since, it is my opinion and also the opinion of my friends, men who are acquainted——

25 Q. State the fact.

A. I was the man that instituted the concern. I was the instigator of dropping these mullers.

26 Q. When did you invent that feature?

Objected to.

A. It had been running in my mind some time previous to the fire as I was making the alterations in the present oil works that I had on hand that I had charge of. This, among other things, were contemplated, and the burning down of the establishment and the rebuilding it gave me an opportunity to carry into execution some of my ideas.

27 Q. State what you did in that respect.

A. Well, I put the machinery up and went to work without the use of mullers.

28 Q. When did you put the machinery up?

A. It was in progress in March or April.

29 Q. What were you doing through the winter?

A. In December of that winter I put up a brick building to give us shelter and some room to operate in. As quick as we got that ready we went on with the machinery, got the engines to working and the balance of the machinery, the presses up and rollers

119 up, and got ready for business.

30 Q. You resurrected the wreck of the fire?

A. Yes, sir.

31 Q. Did you at any time before this experiment upon the idea of not using mullers?

A. Only in theory; from the fact that I had no opportunity of making my demonstrations.

32 Q. And your using that machinery when you got started it put the idea into practice?

A. Yes, sir.

33 Q. State whether or not you did then put it into practice in the moistening and heating of the crushed seed preparatory to pressing the oil.

A. I put into practice the non-use of mullers to prepare the meal for the presses.

34 Q. State just what was the process from the beginning to the end after you began to disuse the mullers.

A. I used the old muller-beds——

35 Q. Begin with the uncrushed seed and trace it through to the oil in the vat.

A. In this case the seed or meal comes to the muller-bed the same as it did before the fire; passes through the rollers, and so forth, for tempering.

36 Q. In what way was it crushed before the fire in that mill?

A. Between heavy iron rollers.

37 Q. How many rollers?

A. Four.

120 38 Q. Put one above another?

A. Put one above another.

39 Q. Go on from that point.

A. From this point it is elevated and deposited in the center of the tempering-bed—we always called it the muller-bed—that is, a large, heavy iron plate, and on the lower side of this plate was a steam cavity; you could admit the steam in there to heat it up to give it the temperature of steam. In this case we admitted steam and water for the preparation of the meal for the press; at the same time this was agitated by a central shaft and by arms carried out; a rim was put around the periphery of this plate of iron which formed a cavity for this meal; at a certain locality a doorway was arranged to let this meal out for use. While this is going on the elevators deposited the meal from the rollers upon the center of this bed.

40 Q. Now, what was done with it on the center of this bed?

A. There was a vertical shaft coming up through with arms extending out carrying it round, which was constantly stirring this meal.

41 Q. From this flat plate where did this meal go?

A. This plate was somewhat elevated in the centre, and it would drop down some five or six feet into this receptacle.

42 Q. What was the shape of this receptacle?

A. Square.

43 Q. Wasn't the bed of this round?

A. Yes, round.

121 44 Q. Wasn't this receptacle round, a sort of trough; a round trough, also?

A. Yes. I can describe it by my hat. This is a plate here (indicating) with a central shaft. This is about 16 or 18 inches wide here. Around the periphery is a rim of boiler iron a little higher than its highest centre. The meal is deposited here and is swept off by the rotary motion of these arms extending from the vertical shaft. Here it comes down. Here we can accumulate any quantity and draw it out as we want it for use. That also retains it and gives it time to be prepared for the presses. This was the device that I used after I had charge of it; that piece of mechanism.

45 Q. Then the trough was not square, but it was circular?

A. It was square in its frame, but round here.

46 Q. Of course these walls are perpendicular?

A. Yes; but round in another direction.

47 Q. How was this meal moistened and where was the moistening applied?

A. Our usual practice is to moisten at the center by the water dropping down through a pipe or steam, either.

48 Q. Was that the mode of moistening when the mullers were used?

A. Yes, sir.

122 49 Q. Now, after the mullers were disused, what did you do about moistening?

A. Well, to my memory, I moistened them the same way. The object is to get the new meal as it runs in connection with the moisture as soon as possible.

50 Q. Just at what point in the operation was the moistening applied?

A. The amount of moisture is adjusted by a valve—the same as a water or steam valve. We have two pipes to admit steam and water both, or water alone, as you please.

51 Q. You have testified that you used mullers for tempering or moistening the meal, as I understand you.

A. Yes, sir.

52 Q. Was that moistening an essential step in the process?

A. Yes; probably the moistening and preparing the meal for the presses is essential in all meals.

53 Q. Could the mullers be disused without substituting some other means of moistening?

A. It would have to have some means of moistening, either with mullers or without.

54 Q. Who owned this meal?

A. This meal, at the time it went into operation, was owned by Wright and Lawther.

55 Q. It was the old Goold mill before the fire?

A. Yes; they bought Mr. Goold's wreck out.

56 Q. State whether or not you applied this idea of yours

123 of disusing mullers openly and publicly in that mill.

A. Yes, sir.

57 Q. And for how long?

A. During the term of my service after I got the machinery running.

58 Q. How long was that?

A. It must be somewhere from four to six weeks. My service expired the first of May, 1872.

59 Q. Now, was that the only mode of manufacturing used in that mill at that time?

A. Yes, sir.

60 Q. State whether or not that mode was successful.

A. It was successful so far as I know.

61 Q. And it was practically applied in the manufacture of oil so long as you were there?

A. Yes, sir.

62 Q. What, if anything, do you know of its continued use ever since then?

A. I have seen some mills running without mullers.

63 Q. I mean in that mill.

A. As far as that mill is concerned, I don't know that there are any mullers there now.

64 Q. Have you ever been in that mill since then?

A. I think I have; twice.

65 Q. At what time?

A. Some year or two after that I think I was in there. My business has called me away so that I never visited the place but two or three times.

124 66 Q. You may state what the condition of the machinery was on that point—how they were moistening.

A. I didn't examine that closely; I didn't observe closely. I don't know that it was changed from what I left it.

67 Q. Would you have noticed mullers if they had been running?

A. Oh, certainly; I couldn't help that.

68 Q. The point is, were mullers in use there?

A. No, sir.

69 Q. When you say Wright & Lawther owned that mill do you mean the Mr. Lawther in that firm is the complainant in this case—Alfred B. Lawther?

A. Yes; so far as I know.

70 Q. Was he there?

A. Yes, he was there, off and on; about there.

71 Q. State what, if anything, he knew of your disuse of the mullers.

A. I suppose he was familiar with what was going on.

72 Q. Was he there and saw it?

A. Yes, sir.

73 Q. Was it in practical operation?

A. Yes, sir.

74 Q. What, if anything, do you know of Mr. Lawther's inventing this same process?

A. So far as I know and am able to judge, in my own judgment Mr. Lawther took the matter where I left it and has gone on.

75 Q. Do you know anything of his inventing or originating that step at or before the time you originated it?

125 A. No, sir; I never knew him to invent anything.

76 Q. Who was the other member of the firm of Wright & Lawther?

A. I understood up there that Charlie Crane was interested?

77 Q. I mean Wright & Lawther, the two men whose names appear in the firm name. Who was the Wright that was in the firm?

A. It is the Wright that has to do with it now, I understand.

78 Q. What is his name?

A. That I don't remember now.

79 Q. He is the present manager of the same mill?

A. Yes, sir.

80 Q. And lives here?

A. So far as I know, yes.

Cross-examination by Mr. MUNDAY:

1 X Q. Where were you employed at the time of the great fire of Chicago, October 9th, 1871?

A. I had charge of what is called the Goold Linseed Oil Works.

2 X Q. That is in Chicago—was it?

A. Yes, sir.

3 X Q. In what part of Chicago?

A. It was on Polk street, corner of Fort Wayne, railroad, west side.

4 X Q. Where was Wright and Lawther's manufactory at that time?

126 A. It was on Canal St., between Randolph and Lake.

5 X Q. Had you ever been in that factory?

A. Yes, sir.

6 X Q. They had muller-stones in that factory, did they?

A. Yes, sir.

7 X Q. How many stones?

A. One pair.

8 X Q. A small pair, was it?

A. Yes, sir.

9 X Q. When the fire came the Goold factory was burned down, was it?

A. Yes, sir.

10 X Q. But the fire did not burn the factory of Wright & Lawther?

A. No, sir.

11 X Q. Did Mr. Goold have any linseed in the factory when it was burned?

A. Yes, sir.

12 X Q. A large quantity of it?

A. Yes; quite a quantity of it.

13 X Q. What became of that linseed?

A. Burned down in the wreck.

14 X Q. Was it all destroyed?

A. No, sir.

15 X Q. What was done with it? Who bought it, if anybody?

A. These men bought considerable of it, and others some of it. I am not able to say where it all went to.

16 X Q. What men do you mean?

A. I understand Wright & Lawther bought some of it.

17 X Q. What did they do to it?

A. Worked it up, I suppose, in the mill.

18 X Q. Did they carry it over to their Canal St. mill?

A. Yes, sir.

19 X Q. When did they employ you?

127 A. It must have been along about the first of December, I think, or, I think, in November.

20 X Q. What was the first work you did for them?

A. Simply continued working in the ruins; I was clearing up the ruins at the time.

21 X Q. You were engaged in taking out the machinery from the ruins?

A. Taking out the machinery, saving what seed there was and what iron there was; all this sort of thing; a complete separation of the wreck—clearing up around.

22 X Q. Whose hands did you have there employed?

A. In the beginning I hired my own men; afterwards Mr. Goold came along there, and they settled the bills; in one sense they were their men; I employed them.

23 X Q. Did you have any of Wright & Lawther's men there?

A. I don't remember particularly about that; there might have been some of them there in the latter stages of the game.

24 X Q. Well, wasn't this the way of it: You were engaged there with Mr. Goold's men as superintendent, and subsequently Wright & Lawther bought the seed and employed you, along with the men you had there?

A. They employed me to go on just as I had been going on.

25 X Q. Wright & Lawther paid the man and paid you?

A. After the thing went into their hands the men were paid by them.

128 26 X Q. That you think was in December, 1871?

A. It must have been in the latter part of November; I know in December I put up the building.

27 X Q. What was the first thing you did when you got this machinery out from the ruins?

A. After it went into their hands they commenced the resurrection of this machinery, or I did it for them.

28 X Q. In the meantime there had been great quantities of this seed sent over to the factory?

A. They took it away from there; I suppose it went to their factory; I didn't follow it after it left the premises.

29 X Q. You don't know anything about what they did with it after it got to their factory?

A. I suppose they worked it up.

30 X Q. What was the condition of this seed?

A. It was in all conditions you can conceive of seed being in after passing through a fire; like an elevator, for instance, you can take out quantities of good, bright grain, and some of it was burned black—ruined entirely; some of it would be some damaged, perhaps; some of it would be smoked—have the flavor of smoke.

31 X Q. Some of it was wet, I suppose?

A. Yes, sir.

32 X Q. All of it more or less moistened?

A. No, sir; I took out several thousand bushels there that was just as bright as could be.

129 33 X Q. A large portion was moistened; a large part of it blacked, and some charred?

A. Yes; it was in all conditions.

34 X Q. Do you know what Wright and Lawther did with the damaged seed?

A. No; I don't; I know what I did with it; I worked it up after-

wards; of course, what they did with the oil and such things I don't know.

35 X Q. You worked up some of this damaged seed yourself?

A. Yes; I worked up some.

36 X Q. What was the worst condition of the seed that you worked up?

A. Some of it was black—had been wet; I dried it; I dried several thousand bushels of seed, and worked it up afterwards and got oil.

37 X Q. Did you try the mullers on any of this blackened seed?

A. No, sir; there was no mullers there; the mullers we had all went to pieces in the fire.

38 X Q. What was the first thing you set up after the fire?

A. The first thing was to get the engine started, and get the rollers and dry the seed—the mixing-machine, elevators, and such like.

39 X Q. The hydraulic presses and engine, the pump for the hydraulic press; this mixing machine and these rollers were all taken out of the ruins and set up, were they?

A. Well, most of them; perhaps there would have to be
130 some new pieces; maybe reorganized—rebuilt; you understand how things would be in that case.

40 X Q. I mean this, you got out of the ruins part of the four high rollers, part of the hat-shaped mixing-machine, parts of the hydraulic press, and parts of the engine?

A. Yes, sir.

41 X Q. And the pump that worked the hydraulic press?

A. Yes; the hydraulic pumps, I think, were principally new; there might have been some of the old work worked in.

42 X Q. You was able, subsequently, to get this machinery set up in a reasonably quick fashion?

A. Oh, yes; we got up a set of machinery out of the old.

43 X Q. Except the muller-stones.

A. Except the muller-stones.

44 X Q. The mullers were all cracked in the fire, were they not?

A. The stone would naturally go to pieces.

45 X Q. They were all broken to pieces?

A. Yes; all broken up.

46 X Q. How long would it have taken you to get a set of muller-stones, if you had wanted, at that time?

A. To get such mullers as we had then it would probably take as long as it would to construct the whole works. I know those we would get would consume more time than for us to resurrect what we did.

47 X Q. In the meantime, I suppose, this seed was suffering?

131 A. It might be considered suffering up to the time it was dried. I started drying before we got anything in motion. I started a large fan-dryer, used it as well as we could until we got this rotary dryer. This machinery was designed to get the seed dry until we got the mill going and then make a heater dryer—the machinery devised for preparing the meal for the presses.

48 X Q. You couldn't work some of this seed that was there at all, could you?

A. Well, some of it wasn't worth working after the seed was dry so as to be in heating condition. I didn't find any of it that I couldn't work.

49 X Q. You could not work some of it under the mullers?

A. Well, there was some seed that was not dried we couldn't work.

50 X Q. Was there some of the moist seed damaged that you could work without the use of the mullers that you could not work with the mullers?

A. I don't know that.

51 X Q. You didn't try it?

A. I had no opportunity of trying it.

52 X Q. From your experience would you say that it would be possible to work that wet seed with the mullers?

132 A. Oh, there was some seed there damaged to that extent that it wouldn't be workable under any conditions at all.

53 X Q. Wasn't there some seed there, Mr. Kimpler, that in your judgment could not be worked with the mullers, and yet could be worked if you left the mullers out?

A. There might be some seed found there that you couldn't operate upon it the same as you would sound seed. It had become too fine, too tender, I presume. There might have been cases of that kind, although I don't know.

54 X Q. It would be likely to squash out of the press?

A. I should be inclined to think it would, from my judgment. It would be too tender to stand the extent of operation that we give to the seed.

55 X Q. It would be your judgment, under such circumstances, with a lot of damaged seed, that it was not advisable to put the mullers on it at all, wouldn't it?

A. Well, there might have been some seed there that could be worked without. At the same time, if I had tender seed like that, and was using mullers, why I should not operate upon it to that extent; but it is not my belief that it could not be worked under mullers. In working new seed it won't all work alike.

56 X Q. In all the mills that you had built up to that time you had supplied with muller-stones?

A. Yes; mullers in all of them.

133 57 X Q. Were you instructed by those who employed you to put the muller-stones in?

A. Yes, sir.

58 X Q. Were you in the habit of doing as you are instructed to do when you are employed?

A. Yes; where I am employed to fill instructions.

59 X Q. What were you employed to do by Wright & Lawther?

A. I was employed to go out and clean up the wreck there, resurrect the mill out of what I could find.

60 X Q. You proceeded to take out the machinery and set it up, did you, all that you could find there?

A. Well, all that I could find, but I put up a set of machinery.

61 X Q. Well, who was the person who came the oftenest to the wreck, of the two gentlemen, Mr. Lawther and Mr. Wright?

A. Well, I saw both of them there occasionally. If there was any difference I should say Mr. Lawther was there a greater number times than Mr. Wright was.

62 X Q. Mr. Lawther was the practical man in the Wright & Lawther mill on Canal St.?

A. Well, he had more talking to do.

63 X Q. He was the managing partner, was he, so far as manufacturing went?

A. So far as I know, he was.

134 64 X Q. He was the man who gave you instructions what to do, where any instructions were given, wasn't he?

A. I don't know that he ever gave me any specified orders. I think he never said, "Mr. Kimpler, you do so and so." He never gave me any figures or specifications.

65 X Q. Didn't he tell you to go on and get this machinery out?

A. Why, that was the general understanding; that was the understanding made after the property went into their hands.

66 X Q. Did you never ask him what you better do?

A. I believe not. I am not in the habit of doing that from anybody.

67 X Q. You went right on? He paid you the amount you wanted to buy some lumber, and then you went to building the house in such a part of the lot?

A. It was decided to put up a building by the concern.

68 X Q. Did you decide that, or did the concern decide that?

A. I had charge of it from the beginning out; it was being talked up. I believe the Goolds did not conclude to go on and rebuild after this arrangement was made. This was in contemplation when the arrangement was made. After I went into their employment I understood this building was to be put up, and they gave me

135 orders to work with that view—clear off that piece of ground first and make such preparation as was necessary, and to use all old material, so far as it was good.

69 X Q. Then you did suggest to them the part of the lot that you were to put the new building on?

A. Oh, that was plain enough—the part which it was advisable to build upon.

70 X Q. What did you build there first?

A. Put up a brick building two stories high—one-quarter of the old building; it must have been 72 x 50, two stories high; in the northwest corner, where the engine was, &c.

71 X Q. It was when this building was done that you commenced to treat the seed?

A. Yes, sir.

72 X Q. You didn't treat any seed before that?

A. No; there was no place. I had bought lumber and put — very extensive sheds for storage. As fast as I came to the seed that was dry and nice I put it into this building.

73 X Q. You did not start the engine until the new building was built?

A. There was parts that I got out and got ready for construction before the building was complete.

74 X Q. But you did not start your steam?

A. Oh, no; not before the building was done.

75 X Q. So you really did not put any seed through this
136 process of treatment that you described until after the brick building was erected?

A. No, sir.

76 X Q. Are you sure of that?

A. I think I cannot be so forgetful. I had no opportunity of working any of it until after the machinery was ready for business.

77 X Q. Are you sure you did not build a shed and put machinery in it, and start the engine up and treat some of this damaged seed before your brick building was completed?

A. There was no machinery in running condition in the shed.

78 X Q. So that it is sufficient to say that you did not treat any of that seed in the new mill until along in March some time?

A. No, there was none of it treated by me until the machinery was ready for business, and that was, I think, in March.

79 X Q. After you got this part of the mill completed so that the machinery would run, what sort of seed did you run it on first?

A. It was on this damaged seed.

80 X Q. The hurry that you were in was on account of the damaged seed that you had to operate on, was it not?

A. Well, I suppose we were in a hurry, the same as anybody would be, to get the works started; the drying of the seed and saving the seed at that time had stopped.

137 81 X Q. Well, the seed—part of it lay out doors exposed to the weather, didn't it?

A. No, sir; it did not; the seed that we worked in this mill did not. It was in good condition as any grain in store.

82 X Q. Wasn't there about 30,000 bushels that lay outdoors?

A. Yes; there was more than that laid out doors, but it didn't go into this mill; that we worked up. For that matter it was all out doors for some time, until I could get it out.

83 X Q. Well, Mr. Kimpler, wasn't there some of that seed burned in the furnace to run the engine with?

A. Yes, sir.

84 X Q. The same sort of seed that was put into the furnace, some of it was run in the mill?

A. Some of the worst of it was used; I think we used some of the cake.

85 X Q. Wasn't some of it the same kind of seed put through the mill that was put into the furnace?

A. I cannot state what was done after I left there; I didn't work it up; I didn't use the seed.

86 X Q. Why didn't you discard mullers in that mill out in Iowa?

A. From the fact that the contract for the machinery was all made at the time the contract was made with me to build the mill.

Their machinery was bought in Trenton, New Jersey. I didn't build the machinery.

138 87 X Q. Why did you never agitate the idea of discarding mullers with those people in Iowa?

A. What would be the object?

88 X Q. Were you working in their interest?

A. Yes; but I did not plan their works from the beginning. I didn't build their works; only their hydraulic pumps.

89 X Q. I thought you never took any orders from anybody?

A. I didn't. I planned the plans for the mill; I draughted and drew up specifications for all of this thing but the oil machinery. That I did not.

90 X Q. If you had in mind the advisability of discarding the mullers why didn't you suggest it to Mr. Abbott?

A. If a man should come to me and say, "Mr. Kimpler, I want you to get me up oil works," that would be another thing; but in that case the oil presses and hydraulic pumps were contracted to be furnished by another party.

91 X Q. But after you had furnished them the pumps and after you had furnished them the muller-stones and after you had furnished them the presses and they were set up, why didn't you suggest to them that they were uselessly consuming power by using those muller-stones, if you knew?

139 A. A man, where he has an idea of producing an influence on others and showing them something to be accomplished—it would naturally be talked up. This was talked up—simply conversation between two men without coming to anything.

92 X Q. Do you swear you told Mr. Abbott it was advisable for him to discard the muller-stones?

A. No, sir; I do not. I would not do it at that stage of the game, either, with my experience.

93 X Q. So you did not at that time have the idea that it was advisable to discard the muller-stones?

A. Yes; I had the idea then and previous to that for some time, but I was not ready to pursue it.

94 X Q. Will you explain, for the benefit of the court, how it came that you did not explain to Mr. Abbott about that?

A. From the fact that there was no interest at the bottom of the statement.

95 X Q. Had you any idea of patenting that invention at that time?

A. I had some such thoughts.

96 X Q. Why didn't you patent it?

A. Because I went out of the linseed field of operations.

97 X Q. Was that any reason why you should not get a valuable patent?

A. I had not an opportunity — that time to go on and prosecute it to a successful termination. As I considered it, at that

140 stage of the game, there was more or less to be done, to the satisfactory practice of the invention. The Iowa mill was the last linseed-oil mill that I built. After I came there—after I came

home from that job—there was another field of operations that called me out and took me entirely out of the management of linseed-oil works.

98 X Q. Then after that you went to work for Goold Bros.?

A. Yes, sir.

99 X Q. In the capacity of superintendent, didn't you?

A. Yes, sir.

100 X Q. And you found grindstones there in full operation?

A. Yes, sir. Have you reference to the plough manufacturing now?

101 X Q. I have reference now to the muller-stones in the Goold mill.

A. No, sir; the work I was in in Iowa was the last linseed-oil work that I did.

102 X Q. When you came to Chicago did you go into the employ of Goold Bros. before the fire?

A. I was in their employ seven or eight years before the fire.

103 X Q. Were you in their employ immediately before the fire?

A. Yes; I was superintendent for them by the year—a salaried man.

104 X Q. All the time you were superintendent for them you used these muller-stones?

A. Yes, sir.

105 X Q. Were you working in their interest at that time?

A. Yes, sir.

141 106 X Q. Why did you not suggest to them the advisability of their discarding the muller-stones?

A. Certain things can be suggested and talked about, but not advised.

107 X Q. Do you swear you ever advised Mr. Goold to discard the muller-stones?

A. No, sir; because I was not ready to do it.

108 X Q. You never suggested the advisability of it to him?

A. This thing had been talked up.

109 X Q. Do you swear you talked it up with Mr. Goold?

A. Yes; I do positively swear it was talked about—running without mullers.

110 X Q. Do you swear you advised Mr. Goold to run his mill without mullers?

A. No, sir; I did not; I wouldn't do it at that stage of the game.

111 X Q. Now, Mr. Kimpler, is it not true that while you were superintendent for Mr. Goold's mill you put in a set of new mullers for him about a year before the fire?

A. No, sir; it was nearly three years before the fire.

112 X Q. When they were burned out is the time I refer to, before the big fire—the fire they had previous to the big fire—when you reconstructed the mill in part. You put in a new set of muller-stones, didn't you, for Mr. Goold?

A. Yes, sir.

113 X Q. Why didn't you leave the muller-stones out that time?

142 A. It is always the case that all things have a beginning. We live in a progressive age. From the old process it was believed, and to the best of their knowledge, they could not get along without the use of mullers, but things are progressing, and it is said of me that I am specially progressive. I am always making improvements—changing. At the time of their fire I had made extensive alterations in the heating and in regard to the hydraulic press. I had raised their productive ability 25 per cent. The work was nearly completed; most all of the work was in the establishment and went down at the time of the great fire. In contemplation following was this disuse of mullers; that was going to be the next thing talked.

114 X Q. Yet you kept that situation?

A. It was spoken of and talked about occasionally as the matter came up.

115 X Q. Do you swear you ever advised or suggested it to Mr. Gould?

A. I have stated twice now I never advised it. I never would, but it had been talked there. A matter can be talked of but not advised.

116 X Q. Did you suggest it to Mr. Abbott in Iowa?

A. Yes; I believe it was talked about there.

117 X Q. Are you willing to swear that, Mr. Kimpler?

A. That it was talked about—spoken of?

118 X Q. Yes.

A. Yes, I am.

119 X Q. What did you say to him?

143 A. I don't remember the particular language now, but in common conversation, in the progress of things, the changes that was being made and the expense of driving the mullers above the expense of the mechanical device and the power required to keep it moving, all this sort of thing, if we could do away with them it would be advisable to do so.

120 X Q. But you did not advise them to do away with it?

A. I was not ready to advise them.

121 X Q. That was the kind of talk you had with Mr. Goold, too, wasn't it?

A. Yes, sir.

122 X Q. Well, now you say that you left that mill in May, 1872?

A. Yes, sir.

123 X Q. When you left there there was some things to be done to make that mill a successful mill yet, was there not?

A. I don't know what there would be to be done, as far as I was concerned; another man coming in might make changes.

124 X Q. Did you make tests of the oil-cake at that time?

A. No, sir; I did not.

125 X Q. You didn't know how at that time to make tests of the cake?

A. I claim to understand my business.

126 X Q. Did you know at that time how to make tests of the oil-cake?

A. Yes, sir.

127 X Q. How did you do it, and from whom did you
144 learn it?

A. I learned, in the first place, from Mr. Moore, of New Jersey. We had our means of testing the yield; we were satisfied, and it was believed by myself and others that knew how to do it——

128 X Q. It don't make any difference what others believed or what you believed, but I ask you this: Did you test the oil-cake at that time—I mean in 1872—and did you know how to do it?

A. Well, that matter stands like this: You might claim that a certain oil-maker makes a test of oil-cake; I may make a test in a different way. I don't know as I understand how somebody else does it. I have my way of doing it.

129 X Q. Did you test the cake at all at that time?

A. I didn't put it through a chemical test.

130 X Q. Did you test it at all?

A. I tested it in our way of ascertaining the yield.

131 X Q. How did you test the oil-cake?

A. I have previously stated that I did not put it through any chemical test.

132 X Q. Will you please to state how you did test the oil-cake?

A. I don't remember just the formula now that I used to use in ascertaining the yield. That is all that constitutes a test of cake in our way of doing business.

133 X Q. Are you ready to swear that you tested the cake at all?

145 A. No; I don't make a positive statement that I tested the oil chemically.

134 X Q. How did you test it?

A. I have stated I do not remember the precise formula that I used in ascertaining the yield.

135 X Q. I am talking about testing oil-cake after the oil is expressed from it to ascertain how much oil is left in the cake. You have stated you tested it. How did you test it, if you did?

A. I have stated we tested the cake; that was done by weighing. I have stated we didn't put it through a chemical test.

136 X Q. How did you tell by weighing that oil-cake?

A. It is admitted we struck the yield.

137 X Q. Will you explain how you tested the cake?

A. We didn't test it in a chemical way. I have stated we tested it by weight. I suppose we all understand. We weigh the cake and we weigh the oil and we get the relative proportion between the two.

138 X Q. Then you ascertain the yield of oil by weighing the oil?

A. Yes; we weigh the oil and the cake and get the relative proportions between them.

139 X Q. Do you pretend to say you can tell anything about the yield of oil in that way?

A. Yes. I do most emphatically.

140 X Q. Don't the amount of oil in different seeds vary?

A. Yes; they do vary. That is just what we were trying to ascertain; that is what we did ascertain.

146 141 X Q. Will your test of the cake by weighing the cake show whether the oil was left in the cake, or whether it was not in the seed originally?

A. I don't know; as to a very fine point there, you might put the cake through a chemical test to ascertain how much oil was left in it.

142 X Q. Then you never did any testing of the oil-cake accurately, did you?

A. We didn't test it that way. We claim to test it accurately. It was admitted by the best judges that we did. As I stated before, we did not put the cake through a chemical test.

143 X Q. You are one of the best judges that admit that that is an accurate test by weight. You yourself admit that is one of the most accurate ways of testing the cake?

A. Yes, I state under oath that that is an accurate way of calculating the amount of yield.

144 X Q. Cannot you tell the amount of yield just as well by the amount of oil, without weighing the cake?

A. You understand me that I do not state that this cannot be ascertained chemically. I admit that it can be ascertained chemically, how much oil is left in the cake, but I believe I can tell you how many pounds of oil you can get to the bushel.

145 X Q. Do you know to this day how to make a chemical test of an oil-cake?

A. I do not claim that I do. I never practiced that.

147 146 X Q. Now, Mr. Kimpler, If you weigh the seed and ascertain the number of bushels in that way before you put it through the press, and weigh the oil after you get it through, what do you gain by weighing the cake?

A. Well, you have got into some pretty fine corners. If you want to calculate the amount that you screen off and everything, you may have to moisten—put in considerable water—you could not tell, it would be pretty foggy to me.

147 X Q. You think it would be better to weigh the cake and weigh the oil to ascertain the number of pounds to the bushel of seed?

A. Yes, sir.

148 X Q. Then you now say you don't remember even how to test the oil-cake by weighing it?

A. I have stated that I have forgotten at this present time the exact formula that we used in ascertaining the yield of seed.

149 X Q. Do you know any formula at present?

A. I don't know as it makes any difference whether I do or not.

150 X Q. If you now know a formula it would indicate that you once knew. I ask you now if you now can state any formula?

A. No, I would not now, because I might be a little out of

148 the way. I have been out of the practice so long.

151 X Q. Well, you don't know now how much oil you were getting out of that seed?

A. No; I wouldn't state now.

152 X Q. Did you know then?

A. Yes, sir.

153 X Q. Accurately?

A. Well, it depends on the fine qualities of your accuracy. You might talk about perfection. There is a state of perfection we want to agree upon before I make the statement.

154 X Q. You had no means except the weighing of the cake?

A. The amount of yield in that case was ascertained on the principles that I had used for several years.

155 X Q. Did you produce superior results to what you had produced?

A. I don't know as there was any very great amount of variation.

156 X Q. Well, was the yield of oil more or less than what you was accustomed to producing with other machinery on good seed?

A. I would not state that. I didn't run long enough to get the thing right down to a fine working basis.

157 X Q. You were running on damaged seed?

A. Yes; and run good seed.

158 X Q. Are you ready to swear that you were making as good yield in that mill as you had been?

149 A. Probably in the case of damaged seed there would not be so much oil in the seed.

159 X Q. How did the results compare? Were you getting more or less oil than you had?

A. Well, getting less; that was due to the damaged state of the seed where we were working the damaged seed.

160 X Q. Now, you did not buy any fresh seed while you were there, did you, Mr. Kimpler?

A. No; there was no new seed brought in.

161 X Q. So that all the seed that you run in that mill had been through the fire?

A. Yes; in one sense it had been through the fire. I worked some of the best seed and some of the poorest.

162 X Q. Now, did you get as good results in that mill as you did, say, in the Goold mill before the fire?

A. I am not able to state that, because I did not work seed of the same quality, nor run under the same conditions. From my memory now, the yield varied in that seed from 9 to 13 pounds a bushel.

163 X Q. You got from 9 to 13 pounds a bushel out of the seed?

A. Yes, sir.

164 X Q. And a good yield under the old process, muller-stones, &c., would be 15 or 16 pounds to the bushel, wouldn't it?

A. Yes, sir.

150 165 X Q. So that, in point of fact, you did not get as good a yield as was got under the old process?

A. I am not able to state how it would be if I could bring the same conditions to bear.

166 X Q. So that you did not ascertain?

A. I had no opportunity.

167 X Q. From your experiments or from your practice there at

that time what would be the comparative yield between the mill as you constructed it and the mill as it had existed before the fire?

A. I cannot tell.

168 X Q. You were not in a position to state at that time?

A. I was not surrounded with the conditions to work out a parallel of that nature.

169 X Q. Then, not getting as good yield as under the old process, and not having tried the new process under the same conditions as you had tried the old process, you were not positively in a position to advise anybody to discard the use of muller-stones?

A. I previously stated I was not far enough advanced to advise the throwing out of mullers at that date.

170 X Q. At that date—you mean the time that you left Wright & Lawther's mill?

A. I mean the time I built the Iowa mill.

171 X Q. Carry it down to the 1st of May, 1872. Were you then in condition?

151 A. No, sir; I was not sufficiently advanced to advise anybody to construct a mill that way, because there were certain points on which I wanted knowledge myself.

172 X Q. Are you on speaking terms with Mr. Lawther?

A. So far as I am concerned, I am on speaking terms, but he has not spoken to me since that spring.

Redirect examination by Mr. SHEPARD:

1 R. D. Q. When did you put up the Iowa mill?

A. It was in the fall of 1872.

2 R. D. Q. Fix as nearly as you can ascertain when the idea of discarding the mullers first took shape in your brain; not simply as something that could be done as a change in the process, but as a practical improvement in the process.

A. It was that summer previous to the large fire. (Objected to as incompetent.) That is when it emanated—at that time—but was not perfected so as to talk or advise specifically. At that time I was going on with extensive improvements in this process.

3 R. D. Q. When did you first suggest the idea to any one beside yourself; not simply as something that would be desirable, but as a practical mechanical improvement in the process, as an advisable thing? I don't mean simply that you would be glad to

152 cheapen the process in that way, but when did you first speak of it to any one else as something that was a practical mechanical device and improvement in the process of making oil?

A. It must have been about the time I was going on with these improvements; that was the summer previous to the big fire.

4 R. D. Q. And to whom did you speak of it?

A. This was talked in Goold's oil works.

5 R. D. Q. With whom?

A. With the Goolds.

6 R. D. Q. Who do you mean by the Goolds?

A. The owners of the linseed-oil works.

7 R. D. Q. Give their names.

A. It was W. R. and John S. Goold.

8 R. D. Q. The owners of the same works that burned down, which you afterward resurrected?

A. Yes, sir.

9 R. D. Q. I understand you to say that you had no opportunity to put the idea into practice until after the fire, as you said?

A. That is the case, sir.

10 R. D. Q. In making up the seed was the good and the bad all mixed together as it would come out of the fire, just as it happened?

A. No, sir.

11 R. D. Q. Or was there a particular lot that was good and a particular lot that was some damaged put through the mill?

153 A. I separated it in proportion to its quality or extent of damage.

Recross-examination by Mr. MUNDAY:

1 R. X Q. I suppose that some of the very bad seed gave a very low yield, didn't it, Mr. Kimpler?

A. I think about 9 pounds was the lowest it run.

2 R. X Q. How long did the seed lay there in the ruins after the fire before anybody went to work getting it out?

A. I went to work the next day after the fire passed over that part of the city.

3 R. X Q. How long did it lay there before anybody commenced to take it out?

A. I commenced taking it out right away; in three days at least.

4 R. X Q. What did you do with it?

A. The first move I made was to build this big shed, previously spoken of.

5 R. X Q. Well, this that you went to work on was that that had fallen out of the building entirely, wasn't it?

A. It was all out of the building.

6 R. X Q You can answer my question, Mr. Kimpler, I think.

A. If you mean the oil works it was all out of the building, but if you mean the shed this seed that I went to work at never was in that.

154 7 R. X Q. You went to work, then, on this seed that had been in the oil works?

A. I went to work on the seed that I had dried and was stored in this new building I speak of.

8 R. X Q. Now—I refer to the time when the fire was and after the fire had burned the building down—you say you went there within three days to work on this seed?

A. Yes, sir.

9 R. X Q. To take care of it?

A. Yes, sir.

10 R. X Q. Now, what seed did you first take care of?

A. I went right into a great bank of seed and separated it according to damage and quality of the seed, you understand, and after I had got in a few feet I came across seed that was dry and bright. That what was on the surface had been damaged by running over—

throwing water onto the roof and all this sort of thing; that was thrown one side, and the dry, clean seed that was dry enough to be handled I put right into boxes, and some of it was handled and carried off, until I got this building built.

11 R. X Q. This work you did on that seed that had tumbled outside of the building?

A. Oh, certainly; when these big bins of seed came down they would flow outside of the walls of the original building.

12 R. X Q. I refer to that very seed that was in the building. How long did that lay until you commenced to take it out?

155 A. Some of the latter part of it was not disturbed until the first of May. Just as quick as we worked off this bank of seed and got into the walls we went into the original building on the other side and commenced working at it. We didn't get it all out until, I guess, the 1st of May.

13 R. X Q. You didn't commence to work on seed inside the building until how long after the fire?

A. It must have been three or four weeks before I got inside the walls of the original building.

14 R. X Q. Well, do you know whether Wright & Lawther bought some of the seed that fell outside the building?

A. I know they bought some seed; it might have included some that was outside.

15 R. X Q. You don't recollect?

A. I think both. As far as I can recollect and see the thing now, they took both outside and inside.

16 R. X Q. Are both the Mr. Goolds living now?

A. No, sir; John S. Goold is living, for anything that I know.

17 R. X Q. The other Goold is dead?

A. Yes, sir.

Signature waived, by consent of counsel, the witness having signed the short-hand notes and sworn to his signature.

156 And the said JAMES WRIGHT, having been first duly sworn to tell the truth, the whole truth, and nothing but the truth in the cause aforesaid, deposes and says as follows, to wit:

Direct examination by Mr. SHEPARD:

1 Q. What is your name?

A. James Wright.

2 Q. Where do you live?

A. Chicago.

3 Q. What is your occupation?

A. Manufacturer of linseed oil.

4 Q. How long have you been in that business?

A. Since 1864 or '5.

5 Q. Do you know Alfred B. Lawther, the complainant?

A. Yes, sir.

6 Q. State whether or not you were ever in the business of manufacturing linseed oil with him.

A. I was.

7 Q. Where?
A. In Chicago?
8 When?
A. From 1865 or '6, up to the time when the firm dissolved, in 1872.
9 Q. Do you know anything about the dropping or the disuse of what were called muller-stones in the manufacture of linseed oil in your mill?
A. It was first dropped in 1872, when we commenced to work on the seed that had been burned in Goold's fire.
10 Q. At what particular place in Chicago was that?
A. The corner of Polk and B street.
11 Q. On the site of the mill owned by the Goolds before the great fire in Chicago?
A. Yes, sir.
157 12 Q. Was Mr. Lawther then in partnership with you in that mill?
A. Yes, sir.
13 Q. About what time did you start that mill—begin running without the mullers?
A. Well, I couldn't say; it was somewhere in February, March, or April—I should say March or April, in 1872.
14 Q. State whether or not the mullers have ever been used in that mill of yours since then.
A. No, sir; not in that mill.
15 Q. State whether or not the disuse of the mullers in the process of manufacturing oil in that mill—was it open and public?
A. Yes; it was open.
16 Q. Was the mill accessible and open to the public as any other such manufacturing place?
A. Yes, sir.
17 Q. State whether it always has continued so from that time—that is, open?
A. It has until the last two or three years. We have tried to keep people out some. Of course it was open.
18 Q. Was the process concealed from view of any one that came into the mill; was it kept as a secret process?
A. Not as I know of.
19 Q. Or any part of it?
A. Not that I am aware of.
158 20 Q. Were you practically engaged in that mill or only an outside partner?
A. I had charge of the office.
21 Q. You were there as your regular business?
A. Yes, sir.
22 Q. Always have been since then?
A. Yes, sir.
23 Q. Mr. Lawther was there as an active member of the concern during all this time—from the winter or spring of 1872?
A. The winter or spring of 1872—the winter or spring of 1871 and '2 up to four or five years after; I don't know exactly the date.

Cross-examination by Mr. MUNDAY:

1 X Q. You say the firm of Wright and Lawther dissolved in 1872?

A. Yes, sir.

2 X Q. Did that sever Mr. Lawther's connection with the factory?

A. No, sir.

3 X Q. In what manner was the business conducted after that?

A. It was run under the present firm name of Wright and Lawther Oil and Lead Manufacturing Company.

4 X Q. Mr. Lawther continued his relations to the business?

A. Yes, sir.

5 X Q. What was his part of the work?

A. The manufacturing part of it.

6 X Q. He attended to the manufacturing part of it and you to the financial part?

A. Yes, sir.

159 7 X Q. Who directed what machinery should be employed and how it should be employed, if either of you did?

A. Mr. Lawther.

8 X Q. You say you began to work on the damaged seed in 1872?

A. At the new mill.

9 X Q. About March or April, did you work any of that damaged seed at the old mill?

A. Yes, sir.

10 X Q. When did you begin to work it?

A. Well, November or December; I don't know exactly when it was; a short time after the fire.

11 X Q. What condition was it in, Mr. Wright, if you know?

A. There was some that was wet and some that was dry; of course the worst of it we tried to run off first; that that would keep we tried to keep.

12 X Q. Well, did you work it there in the old mill?

A. We worked it under the mullers in the old mill.

13 X Q. Did you work any of it without mullers, if you know?

A. I couldn't say positively.

14 X Q. And don't you remember now there was some of it you could not work under the mullers?

A. I couldn't say; I have no recollection on that point. I think perhaps there was some that was damaged we could not put under the mullers.

160 15 X Q. And that you run right through without mulling it?

A. My recollection isn't very clear on that point. I know we run a good deal of it in the old mill.

16 X Q. A good deal of damaged seed?

A. Yes, sir.

17 X Q. Some of it in very bad condition?

A. Just as bad as it could possibly be to have it run through the mill at all.

18 X Q. Don't you recollect that some of the very bad seed, they tried to press it and could not, after it had been through the mullers?

A. We burned a great deal of it.

19 X Q. Some of the bad seed you worked over without putting it under the mullers, didn't you?

A. I cannot swear to that; not at the old mill.

20 X Q. Who would know about that, if anybody?

A. I should say Mr. Lawther would know.

21 X Q. He had the direct superintendence?

A. Of both mills.

22 X Q. Is it true that Mr. Kimpler did about as he pleased down at that new works, or was he under direction of you and Mr. Lawther?

A. He was under direction of the parties who controlled the business—ought to be.

23 X Q. What was he told to do down there when you hired him?

A. Well, I couldn't give the exact language. I suppose
161 the general idea was to get to work and get that seed out to the best possible advantage.

24 X Q. Who gave him his instructions?

A. That I couldn't say positively; it might have come from either of us. Mr. Lawther had charge of the mechanical working part of it.

25 X Q. Well, your first idea, of course, was to move that seed. You didn't buy the ground at first?

A. No, sir; the land wasn't bought until some time in April, I think. I think it was in April.

26 X Q. Then when did you begin to build that factory there?

A. Commenced to build that temporary factory, I think, in November—either November or early in December—the temporary building.

27 X Q. This was a temporary shanty built there expressly for that damaged seed, wasn't it?

A. Originally; yes.

28 X Q. When did you commence to build the brick building?

A. The temporary building was partly built of brick; the north and the west wall was brick; the east wall stood up.

29 X Q. And that was built with a view to get as much as you could out of that flaxseed that you bought of them?

A. Yes, sir.

30 X Q. When you built that building, had you then the present intention of making a permanent factory there?

A. No, sir.

162 31 X Q. Your idea was to get all you could out of the damaged flaxseed?

A. To get all possible out of it; there was a large amount of it; to turn it to the best advantage.

32 X Q. And to do that you concluded to use the old machinery that was in the mill, so far as you could?

A. Yes, sir.

33 X Q. Did you buy that machinery at the same time that you bought the seed?

A. Yes; practically the same time, I think—within a few days. I might say the same time.

34 X Q. After that you employed Mr. Kimpler to oversee the workmen?

A. Yes, sir.

35 X Q. Did you put the business in Mr. Kimpler's hands in any way?

A. Nothing more than as superintendent of the work.

36 X Q. You told him what you wanted done?

A. I suppose he was told.

37 X Q. That is to say, you suppose Mr. Lawther told him?

A. Yes; I might have given him some orders myself. Certainly he was under the instructions of the firm of Lawther & Company. I suppose when he first went to work there after the fire he was working under the firm of Goold Brothers, because they had some interest in the seed.

38 X Q. That was before you purchased it, of course?

A. Well, we purchased some of the seed before it was taken out of the ruins.

163 39 X Q. Before you purchased the whole of the seed he was there working for the Goolds?

A. Yes, sir.

40 X Q. Then you purchased the seed and then you employed Mr. Kimpler?

A. Yes, sir.

41 X Q. And the first thing he did was what, if you remember?

A. Well, it was to clear up the ruins, and get the machinery out and get the seed out.

42 X Q. He had not begun to set up the machinery, had he, before you employed him?

A. No, sir; we bought the machinery in the ruins.

43 X Q. Did you have any muller-stones belonging to the company at that time?

A. Do you mean in the new mill?

44 X Q. I mean in your possession in any way?

A. We had muller-stones in the old mill.

45 X Q. They were a small set, were they?

A. Yes, sir.

46 X Q. Very much under size?

A. Well, they were smaller than a great many mills were using.

47 X Q. They were not more than enough to carry on the business of the factory as you before carried it on?

A. No, sir.

48 X Q. What was the condition of the muller-stones in the Goold mill after the fire?

A. They were all destroyed.

49 X Q. All cracked and broken up?

A. Yes, sir.

50 X Q. Was it easy to get a pair of muller-stones at that time?

A. Well, no; not very easy, I guess.

51 X Q. The whole city was nearly destroyed with fire, was it?

164 A. We all know that, I guess.

52 X Q. If you wanted to work up that seed down there at the ruins you had to do it without muller-stones, didn't you, as a matter of necessity?

A. No; I don't know that that can be said. I suppose we could have got muller-stones if we had set about it.

53 X Q. It would have taken you some time?

A. I don't know how long, I am sure.

54 X Q. Where would you have gone to get them?

A. Down in Iowa, I guess.

55 X Q. In the meantime the flaxseed was exposed to the weather?

A. Yes, sir.

56 X Q. This temporary factory was put up in a very short time, wasn't it?

A. I think it didn't get running until February or March; I can't tell exactly the length of time.

57 X Q. You continued to use the muller-stones in your old factory right along, did you?

A. Yes, sir.

58 X Q. Up to what time?

A. Up to the time we vacated it; as long as we run the old factory I think we run the mullers.

59 X Q. Then you moved the muller-stones down to the new factory?

A. I think they were moved down there.

60 X Q. In moving the muller-stones down to the new factory what happened to the bed-stone, if you recollect?

A. I don't recollect.

165 61 X Q. Wasn't it broken?

A. I don't remember that; I know one of them was put under the foundation to the boiler-house.

62 X Q. Wasn't one of the stones broken in carrying it down?

A. I don't recollect; I have no recollection at all about that; I know some of the stones were around there when we built the present boiler-house, and it was put in for a foundation; I don't know but both of them.

63 X Q. I refer to the bed-stone.

A. I haven't any recollection about it.

64 X Q. Did you superintend the moving of the machinery, or did Mr. Lawther?

A. Mr. Lawther.

65 X Q. You wouldn't be likely to remember it, would you?

A. Well, I don't recollect.

66 X Q. You run the muller-stones in the old mill right up to the time you left it?

A. As long as we run the old mill; I think we run them as long as we were in it.

67 X Q. Now, referring to this process of treating the seed without

these muller-stones, who do you understand, and who always have you understood, was the inventor of that process?

A. Well, I don't know as I can say who was the inventor; I know Mr. Force had some talk about it, but when it was I could not say—when he commenced talking about it.

166 68 X Q. Haven't you always understood that Mr. Lawther was the inventor of that process?

A. No, sir; I have not. I think we were the ones that put it into successful operation. We were the original concern to take and use it.

69 X Q. Wasn't it adopted by you under the supervison of Mr. Lawther?

A. Yes, sir.

70 X Q. So far as you personally know, wasn't he the inventor of it?

(Objected to as incompetent and immaterial.)

A. Well, I don't know as I can answer that question further than I have stated.

71 X Q. Do you know what yield of oil you were getting in the new mill when it first began to run?

A. The burnt seed?

72 X Q. Yes.

A. It run along—I couldn't tell you exactly how it run; if the seed varies very much in quality of course the yield would vary. I don't think there was an accurate account kept of it; what we wanted was to get that seed out of the way and get all the oil we could out of it.

73 X Q. And you were not getting as good yield out of that meal as you were out of the old mill?

A. I couldn't tell you.

74 X Q. You didn't know yourself?

A. I didn't know myself.

75 X Q. Do you know when Mr. Lawther told you that he
167 was getting a better yield than the old mill; do you remember the time when he told you that he was getting a better yield than the old process?

A. I cannot recollect.

76 X Q. Do you know when Mr. Lawther began to make chemical tests on the cake?

A. Well, I have a general idea at least—that is, it was some time in 1874 or '5; '73 or '4, I should think.

77 X Q. What was the object in making those tests, if you know?

(Objected to as immaterial.)

A. His object was to find out how much oil was left in the cake.

78 X Q. Did he test the oil-cake made in your mill and the oil-cake that he got from other mills?

A. He did later on, I think. I don't know that he did to start with.

79 X Q. You don't know when he first announced that he was getting a better yield of oil with the new process he was pursuing?
A. No, sir.
80 X Q. What was the condition of the oil market in 1872? Was the price of oil low or high?
A. It was pretty high.
81 X Q. It was pretty well up at that time?
A. It was pretty well up.
82 X Q. You could afford to do most anything with the seed and still would make money, wouldn't you?
A. No, I guess not.
168 83 X Q. Any process that would get a reasonable amount of oil out of the seed would pay, wouldn't it, at that time?
A. I don't know whether it would or not; the price of seed was correspondingly high with oil.
84 X Q. Was there considerable demand for oil?
A. Yes, sir.
85 X Q. At any rate, you could afford to work this damaged seed that you bought, and if you got any amount of oil out, it would pay you, wouldn't it?
A. It depends on how much; we have got to get some certain amount out or it wouldn't pay.
86 X Q. If you got nine pounds to the bushel, it would pay?
A. I don't know about that; I don't think it would.
87 X Q. Taking it altogether?
A. Of course the damaged oil itself is not anything like the price of sound oil. It wouldn't bring only about three-quarters the price.
88 X Q. Well, did you pay three-quarters the price for the seed?
A. A large amount of it we didn't pay anything for.
89 X Q. And that you got some oil out of, did you?
A. Yes, sir; it cost a good deal of money to take the seed out.
90 X Q. Has there been, Mr. Wright, or is there at present, any ill feeling between you and Mr. Lawther?
A. Well, we do not have any business or personal intercourse.

169 Redirect examination by Mr. SHEPARD:

1 R. D. Q. When did you move from the old mill?
A. I think some time in July.
2 R. D. Q. 1872?
A. Yes; the best of my recollection is that we moved up there in 1872.
3 R. D. Q. And up to that time you used mullers in the old mill?
A. Yes; that is my recollection.
4 R. D. Q. What kind of rollers did you use in the old mill up to that time?
A. Used two rollers.
5 R. D. Q. What are called pinch-rolls?
A. Yes, sir.
6 R. D. Q. Had you any other means in the old mill of tempering seed except by mullers?
A. No, sir.

7 R. D. Q. Then, if mullers were thrown aside or disused, some other means of moistening and tempering the seed would have to be adopted?

A. Yes, sir.

8 R. D. Q. When you moved from the old mill to the new one, built on the site of the Goold wreck, what was in use there with reference to mullers?

A. There was no mullers in use there.

9 R. D. Q. And had not been from the time it was built?

A. No, sir.

10 R. D. Q. That is, from the time it was rebuilt after the fire?

A. Yes, sir.

11 R. D. Q. What mode of moistening was adopted in that new mill?

A. Steam.

12 R. D. R. Well, how, from the beginning?

170 A. I think we had a coil in the first place, a coil of pipe, and the seed passed over it.

13 R. D. Q. That is, after what is called the Fisher patent?

A. Not after any patent that I know of; that is what is used, a coiled pipe with perforations.

Recross-examination by Mr. MUNDAY:

1 R. X Q. Mr. Wright, I fancy that you must have made a mistake in regard to the time when you moved the machinery from the old factory over to the new building.

A. I may be mistaken.

2 R. X Q. Don't you remember about your landlord raising your rent?

A. Yes; that was in May, 1872.

3 R. X. Q. And you had to have the place for another year?

A. We had to take it and pay what he asked or get out.

4 R. X Q. Then you kept it until 1873—isn't that the real status of things?

A. Yes; we moved out before the expiration of the lease.

5 R. X Q. Don't you remember when you moved out the other man was moving in? There was a lot of machinery in the yard, and it cost you a lot of money to get your machinery out because you had to take it out the other way?

A. I don't recollect now. It was leased to a party I know. I don't know whether it was more than one or not; a man by the name of Morris.

171 6 R. X Q. So you must have staid there until some time in 1873?

A. I think we left there and run the new mill until the fall of 1872; I think that the cylinders were refitted and taken in there in the month of June or July, and we run that on new seed in 1872.

7 R. X Q, Well, you did not move your old factory over there until 1873, then, as you now remember?

A. I know we kept there along in July; the last two or three

months of the lease I know we moved out; somebody else took possession.

8 R. X Q. When did your lease expire?

A. The first of May, 1873.

9 R. X Q. Do you recollect what kind of weather it was when you moved out?

A. No, I do not.

10 R. X Q. Your impression is that it was warm weather?

A. To the best of my knowledge and belief, I thought it was in July or August that we moved the machinery; I know we had to take that building in May, 1872, and pay a great rent for it because we could not give possession.

11 R. X Q. And your lease did not expire until the first of May, 1873?

A. Yes, sir.

172 12 R. X Q. So that the probability is that you moved out some time in the year 1873?

A. It seems to me that it must have been 1872; it was later than I supposed it was.

13 R. X Q. Well, you recollect about the other man coming in when you moved out, don't you?

A. Well, I haven't much recollection about that; in fact I haven't any recollection what it was used for.

Redirect examination by Mr. SHEPARD:

1 R. D. Q. After your new mill, on the site of the old Goold mill, was fitted up and started, did you not run it until you moved in from your old mill?

A. Yes; I think we did; it was after the mill was first started up; the machinery gave way and we had to wait for the new machinery.

2 R. D. Q. You had some repairs done there?

A. It was in the spring—April or May or June.

3 R. D. Q. How long was that suspension of operation?

A. I think it was fully sixty days.

4 R. D. Q. And along towards fall you got started up again in the new mill?

A. Yes, sir.

5 R. D. Q. And run continuously from that time?

A. Yes, sir.

Recross-examination by Mr. MUNDAY:

173 1 R. X Q. Now, Mr. Wright, when did you stop running in the new mill?

A. It was within a very short time after we started up. It was not more than a month any way that the old machinery gave out; the old cylinders were bu-sted.

2 R. X Q. Then you got fixed up again and started up in the fall?

A. Yes, sir; somewhere, whatever you call it—June, July, or August.

3 R. X Q. Then you run along until when?

A. We run right along, I guess.

4 R. X Q. Until the panic?

A. Until the panic; we scarcely ever stopped.

5 R. X Q. There was a great demand for oil previous to the panic, wasn't there?

A. I don't recollect.

6 R. X Q. Didn't you have some doubt in your mind as to your ability to supply your customers with oil at that time?

A. I don't recollect, I am sure.

7 R. X Q. Don't you remember sending out one or two barrels to a man who had ordered a large number of barrels, and divided the product around in that way?

A. No, sir. I might do that most any time; I do that most any year; I have no recollection of it now particularly.

8 R. X Q. The panic came on in September, 1873?

A. Yes; I think it did, or August.

174 9 R. X Q. Did you make up oil-cake after that—run the mill on oil-cake—work it over.

A. We did some of the first seed-cake we ever ran; we ran it over again; when we started we had two sets of presses—the Calahan and the Moor—and what we ran through the Calahan set we ran over again.

10 R. X Q. When did you run it over again?

A. It strikes me it was in 1873.

11 R. X Q. It was while you were using this new process?

A. I guess so; we never used any other in the new mill.

12 R. X Q. When did you quit running oil-cakes?

A. I cannot give you the date; I know there was from one to two hundred tons of it.

13 R. X Q. It was at least some time in 1873—after the spring, wasn't it?

A. It was during the winter—yes, the winter of 1872 and '73.

14 R. X Q. That you run the oil-cake through?

A. Yes, sir.

15 R. X Q. You quit running the oil-cake through the second time when?

A. We never did run but one lot; it must be in the spring of 1873, it seems to me.

16 R. X Q. You run the oil-cake through the second time in the spring of 1873—during that spring of 1873?

A. Not that I know of.

17 R. X Q. Well, what did you run that oil-cake through the second time for—to get more oil out of it?

175 A. Yes, sir.

18 R. X Q. You worked it up, remoistened it, and re-pressed it?

A. Moistened and re-pressed it.

19 R. X Q. Well, there was considerable oil taken out of the cake, wasn't there?

A. I suppose there was or it wouldn't have been all gone through.

Redirect examination by Mr. SHEPARD:

1 R. D. Q. Where was this cake that you reworked made?
A. Up at the upper mill—the new mill.
2 R. D. Q. Did you have it made at the old mill?
A. No, sir; we did not.
3 R. D. Q. It was made originally at the new mill and reworked at the new mill?
A. It was made in the Calahan presses.
4 R. D. Q. Did you have the Calahan presses in the new mill?
A. Yes; one set.
5 R. D. Q. And the Calahan press was a light press—lighter than usual?
A. Well, I don't know.
6 R. D. Q. Smaller?
A. I think not smaller than the general run; they were presses built here; they were built here by Mr. Lawther—that is, under his supervision—part of them was and a part of them under Mr. Hill's supervision.

Signature waived by consent of counsel, the witness having signed the short-hand notes.

176 *Rebuttal Testimony for Complainant.*

In the United States Circuit Court, District of Wisconsin. In Equity.

ALFRED B. LAWTHER *vs.* CHARLES S. HAMILTON *et al.*

At Chicago, in the northern district of Illinois, on this 23rd day of June, 1883, at ten o'clock in the forenoon, before me, H. M. Munday, a notary public within and for Cook county, Illinois, residing at Chicago, in said district, at the office of Munday, Evarts & Adcock, room 68 Honore block.

Present: John W. Munday, Esq., on the part of said complainant, and Charles E. Shepard, Esq., on the part of the defendants, and complainant in person and defendant Hamilton in person.

177 And thereupon the following proceedings were had before me in said cause:

ALFRED B. LAWTHER was sworn, and examined in chief by JOHN W. MUNDAY, Esq.:

Q. 1. What is your name, age, residence, and occupation?
A. Alfred B. Lawther; manufacturer of linseed-oil machines, and am complainant in this case; reside in Chicago.
Q. 2. Are you the inventor and patentee of the process of treating oleaginous seed set forth and patented in the letters patent sued upon in this cause?
A. I am.
Q. 3. Give as nearly as you can the date at which you first conceived this improvement.

(Question objected to as immaterial.)

A. My experiments commenced in 1868; I could not tell if it was that year or the previous year.

Q. 4. Passing down in time to the year 1871, which was the year of the great fire in Chicago that occurred on the 9th of October of that year, please state where you were doing business and what was the style of the concern in which you were engaged previous to the fire.

A. At the time of the great fire the company was Wright, Lawther & Co.; the place of business 13 and 15 North Canal street, in this city.

Q. 5. What business were you engaged in?

A. Making linseed oil.

Q. 6. How long had you personally been engaged in that business at that time?

A. Between five and six years.

Q. 7. What were your duties or share of the work of the firm?

178 A. Running the machinery.

Q. 8. Who attended to the financial part of the business—the office work?

A. James Wright, the senior partner.

Q. 9. In that fire your mill was not burned, was it?

A. No, sir.

Q. 10. The mill of Gould Brothers was burned in that fire, and your firm purchased some flaxseed that was in the Gould Brothers' mill at the time of the fire. I wish you would state in a concise and orderly manner an account of that transaction, from the beginning of it.

A. A short time after the fire Mr. William Gould came to our mill to sell us some seed. I went up to the ruins and bought a quantity of seed that they had taken out and moved it down to our mill. That was nearly sound seed. We took down a lot of seed in addition that was much damaged—black seed was what they called it at the time—for fuel. Some of that black seed was put into the mill and worked. The results obtained led us to buy all of the seed from the ruins of the Gould mill.

Q. 11. What did you pay Mr. Gould for the seed that you bought of him—the sound seed?

A. For the first lot, market price of regular sound seed, although there was really no sound seed in the lot.

Q. 12. How did you come to haul away at the same time for fuel some of the damaged seed?

A. Because it did not cost anything except for hauling. We had Gould Brothers' permission to take all we wanted of it.

Q. 13. What led you to test this damaged seed, if anything?

A. As near as I recollect now, it was from the oil dropping through the grate-bars of the furnace when we burned it.

179 Q. 14. In what manner did you try to work this damaged seed that you hauled to your mill for fuel?

A. The same as we worked the sound seed—by what has been called the Callahan process, with muller-stone rollers and heaters.

Q. 15. State the result of that attempt and also what other attempts, if any, you made to work the seed.

A. We found that it would not stay in the presses. We discarded the muller-stones, on the worst of it reduced the rolling, left it coarser. Muller-stones ground it as fine as flour, so it would not stay in the press.

Q. 16. What did you ascertain by those experiments?

A. The principal point was that we would get a good deal of oil out of it and make some money by it; that was the most important thing to ascertain at that time.

Q. 17. I wish you would state in detail what you did at that time in the old mill with reference to this damaged seed?

A. As soon as we found out that this black seed was worth working we commenced to organize a company with capital enough to take hold of the thing. That company is the present Wright and Lawther Oil and Lead Manufacturing Company. We secured some $50,000 cash capital; purchased of Gould Brothers some fifteen or twenty thousand bushels of the best of the damaged seed, including all of the rest of the seed below the best grade, their burnt oil machinery, engines, and boilers, with the privilege of building a temporary building on their lot to work the worst damaged of the seed. That purchase was made about the first of December, 1871.

Q. 18. Previous to that purchase, how much of this damaged seed had you worked in your old mill on canal street?

180 A. Of the black seed? We will have to distinguish these two kinds or else we will get mixed up. Such as we used for fuel, I mean. We had worked over a thousand bushels; it is impossible to tell accurately; we were working a week or more at it.

Q. 19. In what manner did you work this black seed in your old mill prior to the time of your purchase of Gould Brothers of the entire lot of seed?

A. The first of it we worked with the muller-stones; when that would not do we stopped the muller-stones, put it right from the rolls into the heater, and from the heater into the press, and from there the cake went into the fire.

Q. 20. Having made the purchase, as you have stated, what was the next thing you did in that transaction?

A. Employed men and began to build a building on Gould Brothers' ground.

Q. 21. Who did you employ, and please state with some particularity what you did?

A. We employed Mr. Kimpler, Gould Brothers' old superintendent, to take charge of the renovation of the oil machinery, and John Justin to take charge of repairing of the engine, boilers, and their appurtenances, and they employed what men they required. We put up a temporary building, put in dryers to dry seed, repaired the machinery, got it to running, then worked up a large quantity of black seed.

Q. 22. Mr. Kimpler has stated in his deposition that the idea of working this seed without the use of muller-stones originated with him, and that you started that machinery in that way at his insti-

gation, or something to that effect. What is the fact about that, Mr. Lawther?

181 A. The fact was that we were working seed in that way five or six weeks before Mr. Kimpler went into our employ.

Q. 23. Did he suggest to you this way of working the black seed, or any other seed?

A. No, sir.

Q. 24. While Mr. Kimpler was in your employ, what kind of seed was worked at the temporary shed by him?

A. It was the black seed.

Q. 25. Would it have been possible to work that seed under the muller-stones?

A. No, sir; not by pressure in the press.

Q. 26. Why not?

A. Because it was simply charcoal, impalpable powder in the press, go out wherever the oil would; it was black mud, if ground; when it passed away from the rollers it was not in that muddy condition.

Q. 27. When did you first ascertain that this black seed would be thus injuriously affected by the muller-stones?

A. It must have been about the first of November, 1871; either a little before or a day or two afterwards.

Q. 28. Did you then try some of it under the muller-stones?

A. Oh, yes, sir; that would be the first attempt at working it; it then went under the muller-stones.

Q. 29. And when did you first work it without the muller-stones in relation to the time of that first attempt?

A. Necessarily at once; immediately thereafter; the same day.

(Objected to as an argumentative answer.)

Q. 30. Please state the fact, Mr. Lawther.

A. Immediately thereafter; probably within an hour.

182 Q. 31. I believe that Mr. Kimpler states that he left your employ about the first of May, 1872. Up to this time the temporary mill, constituted of such machinery as could be reconstructed from the ruins of the Gould mill, had been running on this black seed. Now, when Mr. Kimpler left, what did you do? Please state in a narrative form with some particularity.

A. I took charge of the working of the seed—operating the mill; continued to about the latter part of June. We carried the mill on essentially in the same way as Mr. Kimpler had started it—working on black seed.

Q. 32. What did you then, or what took place then—about June, 1872?

A. The most important fact was the purchase of Gould Brothers' ground and the erection of a permanent building. The other business was to keep our old oil-mill running. We worked in the old mill both kinds of seed.

Q. 33. At what time did you get through working the black seed?

A. It must have been as late as the 25th of June.

Q. 34. At that time were you running the two mills?

A. Yes, sir.

Q. 35. What process were you employing in the old mill for the treatment of regular seed?

A. Used the muller-stones; what has been called the old process.

Q. 36. At this time in the old mill how were you treating the black seed?

A. Without the muller-stones.

Q. 37. Now, Mr. Lawther, you say you purchased the land of Gould Brothers, as I understand, for the purpose of building a factory and erecting a mill on it. How long were you in erecting that mill?

183 A. To the best of my recollection, to about the first of September we covered up the roof. I can't be very positive about the date.

Q. 38. In the meantime, for a part of this interval, were you still engaged in running the temporary factory on the black seed?

A. No; we had to tear it down to make room for the new building.

Q. 39. When you built the new factory did you put a set of muller-stones in it?

A. No.

Q. 40. Why not?

A. Lack of time was one thing and the trouble of getting them was another. Our desire to get out a supply of oil for the market was another reason.

Q. 41. Had your experience with the burnt seed, together with your experiments of 1867 or 1868, led you to the belief that you could run regular seed without the use of the muller-stones?

A. It influenced me enough so that I tried it.

Q. 42. What machinery did you put into the new mill, or was it new machinery or rehabilitated machinery that you had bought of Gould Brothers?

A. All of the machinery was of the old Gould machinery, except the elevators; they were new. We only had one set of machinery.

Q. 43. Now, Mr. Lawther, please state what success you had in running this new mill on regular seed; I mean sound seed.

A. It was a failure, so far as the yield of oil was concerned.

Q. 44. How long did it take you to find out that the experiment was a failure? When did you first discover that the new mill was a failure, so far as the yield of the oil was concerned?

184 A. It would take about two hours.

Q. 45. Was your attention called by anybody to the fact that you were not getting a successful yield of oil?

A. Not at that time.

Q. 46. Was it at any time; and, if so, by whom and how?

A. Yes; it was called to my attention by the pressmen some time that fall; I can't locate the time we talked about it; they told me it would not do the work.

(Question objected to.)

Ans. continued: One of the pressmen said he was disheartened.

Q. 47. What did you tell him?

A. I told him to go on; when I got disheartened I would furnish him the biggest set of muller-stones that could be put through a ten-foot doorway.

Q. 48. How could the pressmen know that you were not getting a satisfactory yield of oil?

A. They were experienced pressmen; had worked this machinery for Gould Brothers before it was burned; could tell by the streams of oil that run from the presses.

Q. 49. Did you make endeavors or changes for the purpose of obtaining a successful yield of oil?

A. I did; hundreds of them.

Q. 50. When did you begin your efforts to bring the mill up to a proper yield of oil?

A. Probably four or five weeks after the mill started.

Q. 51. Why did you not begin sooner?

A. I was tired out, owing to the amount of work I had done.

Q. 52. As nearly as you can at this time, I wish you would detail the various efforts that you made—the various changes that
185 you made in your struggle—to make a success of this experiment of running the mill without muller-stones.

A. With the exception of one machine, I changed everything in the mill, and some of it many times; we changed the rolls, the pressing business, the heater, the pump and the presses, and even the press-mats; the exceptional machine was the moulding-machine; it is very difficult to give such a mass of details, that covered two years of time.

Q. 53. Please go on and give a detailed account of what you did to make the experiment of the new mill a success.

A. I can give the details, but I can't give them in the order of time in which they occurred. Probably the first experimenting that was done was in regard to the pressure used on the presses; we increased them to all the presses would safely carry; then we changed the size of the cake to get still more pressure; then we made new press-mats, leaving off the edges, so as to allow the oil to flow out more freely. Probably the next thing in order of time was the changes we made on the heater. I put in as many as twenty different steaming and watering devices; would try one, think of something better, and try that. Finally we threw the heater out entirely and put in a new one. We put into the rolls a system of levers, to increase the crushing capacity, put levers in, and loaded them down with big iron weights. We went through the same series of changes—they were not identically the same—with the new heater that we did with the old one. Then we would go back and retrace—retry all these prior experiments—do them over again. This occupied about two years' time, and probably we were working at it half of the time in the two years, probably more.

186 Q. 54. During this time that you were engaged in experimenting on this new process and endeavoring to carry it into successful operation did you make any tests of the yield of oil, in order to compare the result of your operations with the result that

other mills were attaining who were using the old process, or the result that you yourself had attained with the old process?

A. Up to the spring of 1873 I had no way of making any tests of comparing our work with the work of other mills. We could compare our work with the work that we did in the old mill by weighing the cake and oil, which is an imperfect way of doing it, because it don't take into account the difference in the quality of the seed. Some time in the spring of 1873 I learned the way of testing by determining the amount of oil that was left in the cakes. Then I could compare our work with any mill that I could buy cakes from, as we did get cakes from almost every mill that worked linseed in the United States.

Q. 55. State generally the result of that comparison that you were then enabled to make with your mill and the old-process mills?

A. We didn't do as good work as the old-process mills did.

Q. 56. Do you mean that you were unable by the new process, as you were then using it, to get as much oil out of the seed as the old-process mills were able to get?

A. While our old mill was running, up to the spring of 1873, we got more oil in the old mill per bushel by the weighing test than we did in the new mill. About the time the old mill was closed up the chemical testing came into play, and then we were leaving more oil in the cake than the old-process mills. Then we could compare our work with anybody's mills.

187 Q. 57. When did you first make a success of this process, or, in other words, succeed in doing by it as good or better work than was being done or could be done by the old process?

A. It occurred between the 31st day of May, 1874, and the second day of June, 1874. The tests on the 31st day of May showed a large per cent. of oil in the cakes. The tests on the 2nd day of June showed work equal to work done in the old-process mills.

Q. 58. Then do I understand you to say that with all the changes that you had made, the different experiments you had tried with the new process, you had not succeeded up to the 31st of May, 1874, in producing a satisfactory result or yield of oil, as compared with the old process as practiced by others and yourself?

A. I had not. We even reworked cake as late as October or November, 1873; subjected it to two pressings.

Q. 59. Had you in mind at any time during this period of struggle and unsuccessful experiment to abandon this new process and go back to the old process and the use of muller-stones?

(Objected — as immaterial.)

A. Yes, sir; we went so far as to draw all the plans for the necessary machinery and making arrangement for getting the muller-stones from the quarry, although we never actually consummated that arrangement.

Q. 60. At what time was this, or about what time, when you made the drawings for machinery, including the muller-stones, and begun to arrange to get muller-stones from the quarry?

A. I have no means of locating the date any nearer than
188 the spring of 1873. I can't locate the time, except that the grindstone man said that the quarry had to dry out first before he could get the big ones.

Q. 61. How are you able to fix with accuracy the time when you first successfully used the new process?

A. I kept a record of some of the experiments I made—of a good many of them.

Q. 62. Have you that record with you? And, if so, please produce it.

A. I here produce the book.

Q. 63. Are you willing that this book should go in evidence?

A. Yes.

Q. 64. Is the book in your handwriting?

A. Not all of it.

I will here ask the notary to page the book referred to.

Q. 65. What portion of the book is in your handwriting?

A. All except page 18.

Q. 66. Whereabouts in this book, on what page, do you find the entry which enables you to fix the date of your first success of your new process?

A. Page 30.

The book referred to by the witness is here offered in evidence by complainant's counsel, and the same is marked "Complainant's Exhibit Lawther's Book."

Q. 67. Refreshing your memory by means of the book, please state the results of the tests made by you before you attained success in your experiments, giving tests of your own cake as well as that of other mills.

A. The first tests that I have record of in this book were
189 not made by me. The tests were made by M. B. Manwaring. The earliest date, December 23, 1872; old-process cake, 9.375, nine and one-third per cent. of oil in the cake, it means. It means that the mill had taken out all the oil from the cake except 9.375 per cent.

The next test of cake was April 15, 1873; tests by the same man; new-process cake contained 11.250; another sample contained 10.833; a third sample contained 10.833; a fourth sample contained 10.416.

The next twelve entries is of old-process cake, same date, 10.833, 10 per cent., 12.083, 10.833, 10.416, 10.208, 10.401, 12.498, 10.416, 12.083, 11.250, 11.340.

September 17, 1873, by same man testing, it was 11.250, 10.625, old-process cake; 13.750 and 10.625, new-process cake.

October 16 and 17, 1873, I made this test and all subsequent, 12.016, old process; 9.072, new process.

October 22, 1873, old process, 10.220.

May 25, 1874, 9.340; two tests were made, one of them spilt, new process.

May 26, 1874, old-process cake, 11.940; new-process cake, 9.300.

May 30 and 31, 1874, new process, 9.920.

June 4, 1874, test of fifteen cakes made June 2, by new process, 8.560.

By Professor Siebel's tests, same samples, 8.640; that was to corroborate the extraordinary result we had accomplished.

Q. 68. Why did you get Prof. Siebel to make this test of oil-cake?

A. The suggestion came from Mr. Crane. When I told him what we had accomplished he wanted to be absolutely certain that I was right.

Q. 69. Did you from that time go right on *and* improving the yield of oil by the new process?

190 A. Yes, sir; got it down to six per cent. in a short time after that.

Q. 70. Before you had succeeded you state that you even reworked some of the cake. Do you know what amount of oil was left in the cake after it was reworked?

A. There are two tests here, 9.700 and 9.400, on page 21.

Q. 71. How was this cake reworked, Mr. Lawther?

A. We first ground it fine in a cake-mill, then worked it as we did seed; it was not ground under mullers or through the rolls; we ground it to a fine powder in this mill; it was as fine as corn-meal.

Q. 72. Was there a large amount of this cake worked over by you that you had run through the new process?

A. There was a large amount of it—about 200 tons of it—to the best of my recollection.

Q. 73. Can you fix the time when you reworked this cake?

A. I can. We worked it in October, 1873, when we had nothing else to do, on account of the panic.

Q. 74. Mr. Wright stated that this cake that you reworked was cake that had been made on the Callahan presses, and that the cake made on the Moore presses you did not rework. Now, do I understand that the cake you reworked was some that had been made by the new process?

A. It was made by the new process, in the new mill.

Q. 75. Why did you rework the cake made on Callahan press and not the cake made on the Moore press, both kinds of cake being made by the new process?

A. The cakes made on the Moore press would sell for more money, being better shaped; that was one reason.

191 Q. 76. Did you understand that there was any difference in the amount of oil extracted by you by the two kinds of presses?

A. I have no recollection as to that; but I find here a test on page 21 of this book where the box-pressed cakes contained more oil than previous tests of the plate or Moore press cakes.

Q. 77. How is it, as a general rule, with these two kind of presses, under your observation, as to the yield of oil?

A. By the old process there is no difference, as these tests indicate. By the new process, I don't know.

Q. 78. Now, Mr. Lawther, I wish you would give approximately

and as near as you are able what it cost you or your concern to make this experiment of the new process before you attained success—that is to say, estimate the amount of loss of oil caused by your new-process efforts over what you would have been able to obtain had you gone on in the new mill and used the old process; also include the amount of time lost by your mill in making these numerous changes and experiments and the cost, as near as you are able to state it, of the various changes in the apparatus?

(Objected to as immaterial.)

A. I can give you the amount that I paid out of my own pocket pretty closely; that is over thirty-seven hundred dollars. I can give you an estimate that was made at the time by Mr. Wright as to the cost to the firm. He said it cost over twenty thousand dollars. Any estimate I could make at this time would only be guesswork. We paid a good deal of money for apparatus. We were delayed a large amount of time in making the changes in the apparatus, and the loss in the yield of oil in addition.

192 Q. 79. You have had considerable experience with the old process in your old mill. Now, comparing the results that you obtained in your new mill, up to the date of your first success, with what you could have done by means of the old process, please state in round numbers, considering the capacity of the mill and the amount of seed treated, how much money you lost by loss of oil in those experiments.

(Question objected to as immaterial and irrelevant.)

A. I should estimate it at twenty or thirty thousand dollars.

Q. 80. At what time did you make your application for the patent sued on in this case?

A. March 6, 1875.

Q. 81. It has been stated in affidavits filed herein that you did not invent this process, Mr. Lawther, but that the invention was communicated to you by one William M. Force, of Newark, New Jersey. Is that true or false?

A. It is not true.

Cross-examination by Mr. SHEPHARD:

C. Q. 1. How long did you remain in the Wright & Lawther Company?

A. Five years and seven months—January 1, 1872, to August first, 1877.

C. Q. 2. How long were you in the firm, and the dates?

A. From the spring of 1867 to January 1, 1872. The original firm was Wright & Lawther, succeeded by Wright, Lawther & Co.

C. Q. 3. Were all your experiments conducted at these mills you have mentioned?

193 A. Yes.

C. Q. 4. When did you first disuse the muller-stones?

A. The latter part of October or first of November, 1871.

C. Q. 5. If you had been experimenting before to improve the process why had you not tried dropping the mullers before?

A. I did try it, but so short a time I gave the answer that I did.

C. Q. 6. When was that?

A. It was in the year 1868.

C. Q. 7. What process were you then using?

A. It has been called the Callahan process—the muller-stone.

C. Q. 8. State just how and what you did in that experiment?

A. We had a set of very small muller-stones; we loaded them down to increase the grinding action; subsequently we gave that up, and then stopped them entirely for a short time. The seed was rolled, put directly into the heater, moistened by water, heated, and then pressed.

C. Q. 9. How did you moisten the seed?

A. We sprinkled water on it with a broom after it was in the heater.

C. Q. 10. What was the result of that experiment in regard to the yield of oil?

A. We didn't get a full yield.

C. Q. 11. In using your muller-stones before and after that time how did you moisten the seed?

A. By throwing water into the seed when it was in the muller-stones, both by hand and by pipe or jet.

C. Q. 12. Did your pipe that wet the meal travel with the muller?

194 A. It did.

C. Q. 13. Did you have scrapers that travelled with the mullers?

A. Yes, sir.

C. Q. 14. What sort of a bed did you have? I mean the muller-stone bed?

A. Sandstone bed. It was the flat side of a big grindstone, no dip to it; there was a wood curb around it to keep the meal from going off of it; the sides were flaring outward.

C. Q. 15. After the muller-bed was delivered of its load of meal, how much thickness of meal would remain there?

A. I suppose you might say a quarter of an inch, but some places nothing; we meant to clean it all out, but the scrapers did not work true enough to wipe it all out.

C. Q. 16. While the mullers were running on the bed of meal, what thickness of meal would there ordinarily be under the mullers?

A. About three inches.

C. Q. 17. Weren't the mullers rigged on the vertical shaft so that their axletree would slide up and down according to the thickness of meal that was under them?

A. Yes; about six inches of room allowed.

C. Q. 18. How long would a load of meal ordinarily stay in the bed under the action of the mullers, until a new load was put in?

A. Quick working was twelve minutes; ordinary working was fifteen minutes; that time covers the filling and emptying also.

C. Q. 19. For how many presses did the mullers do the work?

195 A. Three, of five cakes each.

C. Q. 20. How many times in an hour did you work the presses?

A. Quick working, five times an hour; ordinary working, four times an hour; that amounts to twelve changes an hour on the three presses. In the early part of our operation we had but two presses; we run the two presses, say, two years; after that, three presses.

C. Q. 21. How many pressings could you put under the mullers at one time or at one load?

A. The press would hold about a bushal and a half; we would get in four presses about five or six bushels.

C. Q. 22. The heater held just what you put into the press, didn't it?

(Objected to as not proper cross-examination.)

A. As near as the man could tell by shoveling it in; we had two heaters for the two presses, and they answered afterwards for the three presses.

C. Q. 23. Then the heaters were run with each load the proper time to keep the presses supplied?

(Same objection.)

A. Yes, twelve or fifteen minutes.

C. Q. 24. How many bushels of meal would the muller-bed hold with a load three inches deep?

(Same objection.)

A. About five bushels—four or five, say.

C. Q. 25. What or who suggested to you the idea of dropping the mullers to work the burnt seed?

A. Nobody suggested it to me; what suggested it was the general knowledge that I had of working flaxseed.

C. Q. 26. How did you moisten the burnt seed?

196 A. We moistened the burnt seed when it needed any moistening, which was very seldom, by putting the water directly into the heaters; it was seldom because the seed was wet.

C. Q. 27. Then moistening is essential to seed in its normal condition for the working of it, is it not?

A. That is my experience with it.

C. Q. 28. What was your heater?

A. It was a double wrought-iron jacket on a double cast-iron bottom.

C. Q. 29. Then in working without the mullers didn't you first introduce the meal into the heater, then apply the water, and then heat the meal to a sufficient point of dryness, and then take it to the press?

A. That would be the course of procedure; he would fill the

heater first, then apply the water, and the heating was going on all the time.

C. Q. 30. The heating was done by introducing steam inside the jacket and in the hollow bottom?

A. In the cavity of the jacket and bottom.

C. Q. 31. You never used the mullers, did you, after you dropped them, to work up the burnt seed?

A. Never used on the burnt seed, but we used them on the other seed for eighteen months.

C. Q. 32. From the time of dropping the use of mullers in the new mill, didn't you work continuously without them in all your experiments and as long as you were in that mill?

A. We never had any mullers in the new mill.

C. Q. 33. During all the time you were in the mill how were you moistening the meal?

A. We moistened with water and with steam applied in the heater.

C. Q. 34. And heated it in the same receptacle?

197 A. Yes.

C. Q. 35. And how did you extract the oil after the seed had been properly crushed, wet, and heated?

A. We used hydraulic presses.

C. Q. 36. What were your experiments for improving the process directed toward?

A. The prime object was to get the yield of oil.

C. Q. 37. What was the particular improvement that you were aiming at?

A. It involved both the process and the machinery.

C. Q. 38. Having left out the mullers in all your experiments, without producing better results, until about June 1, 1874, how did you bring about that increased yield?

A. We got at it when we got a thorough crushing of the seed, combined with a thorough, uniform moistening. When we crushed the seeds individually, retaining the hulls or bran unbroken as far as possible, we had succeeded in the crushing. When we got the water or steam uniformly mixed with the crushed seed we had accomplished the moistening. The heating and the pressing completed the operation.

Cross-examination continued by Mr. HAMILTON, one of the defendants, by consent of counsel:

C. Q. 39. You were using, during all the period of these experiments, a stack of rollers—how many?

A. Four in the stack.

C. Q. 40. You used no pinch-rollers?

A. Not for that purpose.

C. Q. 41. What improvement, if any, in the stack of rollers did you make to produce a more thorough crushing than the four rollers during these experiments?

198 A. The first change was to put levers on them—weighted levers; the next step was to get longer rollers. I cannot say

whether the five high rolls were in position before this particular date fixed on or not, but we did put in a stack of five high rolls, and then a stack of seven high rolls; that was the series of changes.

C. Q. 42. Then this improvement in the rollers consisted in increasing their weight, size, and number?

A. The series of improvements.

C. Q. 43. In your testimony as regards your experiments in the new mill, you have stated that you changed at times every portion of the machinery except the moulding-machine. How could you get an increased pressure per square inch except by reducing the size of the cake and the moulding-machine by which the cake was shaped?

A. As I understand that question, we put additional weights on the safety-valve. We got the cakes smaller by cutting the edge off after it was moulded. The first one that I have a record of, on page 12, was reduced from thirteen inches in width to ten inches in width. The next one that I have a record of, page 15, was reduced from thirteen to nine and a half inches in width, and from thirty-two inches in length to thirty inches in length. We only operated on one cake in one pressing.

Cross-examination by Mr. SHEPHARD resumed:

C. Q. 44. How far does your steam-jet apparatus for moistening the meal go toward heating it?

A. It depends entirely upon the dryness of the seed and the temperature of the weather. In hot weather with dry seed it is sometimes too hot by the time it is moistened. At other times we use atmospheric pressure of steam in the bottom of the heater
199 only; sometimes we use one hundred pounds of steam in both bottom and side of the heater.

C. Q. 45. How far does the injected steam tend to heat the meal, apart from the steam in the jacket?

A. I think that is the same that I answered before; whatever heat is in the steam is carried into the meal.

C. Q. 46. Can you work the seed satisfactorily without heating it, by the use of the jacket, simply by moistening it through the jet?

A. If the seed is dry enough; it must be very dry.

C. Q. 47. Can you in any case heat it sufficiently by injected steam to get as good results as when you heat it by the steam-jacket as well as moistening?

A. I have done it.

C. Q. 48. You ordinarily both moisten it through the steam-jet and heat it with the jacket, don't you?

A. Yes.

C. Q. 49. What is the comparative difference in the time of pressing in the Moore presses and in the Callahan presses?

A. I suppose the average would be about two and a half times as long in the Moore press than in the Callahan press. It is as various as the men who work it.

C. Q. 50. The longer you leave the cake under pressure the more oil you get out of it, don't you?

A. I think so, within reasonable limits, inside of an hour, say.

C. Q. 51. Would your tests of the amount of oil left in a cake be fair when you compare cakes left in the one, two, or two and a half times longer than the other?

A. Well, I don't think the conditions would be the same in the two operations; the test is the fairest one we can get.

200 C. Q. 52. Wouldn't the fair test be to leave the cake by each process in the press for the same time?

A. It would by making the conditions as similar as possible.

C. Q. 53. Is there any fairness, then, in the comparison of the cake by your process, where it is under pressure nearly or quite an hour, with old-process cake which is left in but eighteen or twenty minutes—the usual time?

A. There wouldn't be if that was the only comparison. There is an immense amount of cake made by the Moore presses under the old process; Moore's system is the old process instead of Collahan's system.

C. Q. 54. Do you know how long the cakes that you got from other mills had been pressed—that is, by the old process?

A. I do not.

C. Q. 55. Do you know how long your own cake was pressed?

A. I know the custom of working in the mill; I couldn't apply it to each individual test; forty-five minutes was the time; subsequently increased to forty-eight minutes, sometimes forty minutes, sometimes sixty minutes. The custom now is from forty to forty-five minutes all over the country.

C. Q. 56. From what part of the cake did you take your specimens to test?

A. We usually ground from one cake to one ton into meal, and took our test from that, after it was mixed by the grinding.

C. Q. 57. When did this invention, as you claim it, as you describe it in this patent, first take tangible and practical shape in your mind as a whole process?

201 A. Complete and perfect in 1874.

C. Q. 58. What time?

A. Between the 31st of May and the 2d of June.

C. Q. 59. What was the particular improvement that produced the change in results at that time?

A. It was the perfecting of all of the improvements, the harmonious working of all the changes that we had made in the matter; most of the changes had taught us something, and when we learned it all we knew it.

C. Q. 60. What particular thing brought about that change at that time?

A. I don't know that I could locate any particular thing of any importance or magnitude.

C. Q. 61. What did you do different on the first or second of June or thereafter from what you had done on the 30th of May or theretofore?

A. I have answered that before as near as I can. I only know it

was the culmination of all previous efforts, our knowledge, and our apparatus.

C. Q. 62. Was the change caused by anything more than your men's increased practical skill and experience in working seed in that new way?

A. Added to the apparatus, yes, sir; that was just it exactly. We couldn't have done it without the proper appliances, and with the proper appliances we couldn't have done it without the knowledge; the two things come together. The whole thing was a series of infinitely small steps.

C. Q. 63. Wasn't the apparatus the same on the 30th of May and after the 2d of June?

A. I have no record of any experiment or change having been made during that time, nor do I recollect of any changes. It is possible that it was precisely similar.

202 C. Q. 64. Isn't that your best recollection, that it is similar?

A. I have no recollection about it one way or the other. One of our greatest difficulties was the uniform moistening of the seed. We changed the moistening apparatus in a great many different ways. Some of them involved the delay of a day, some of them an hour, some of them a few minutes. Some such changes as that might have been made in the time spoken of.

C. Q. 65. No change was made in the roll in that time, was there?

A. Not that I know of.

C. Q. 66. Nor in the heater apparatus or in the presses at that time?

A. No; we didn't change the body of that heater; probably not the presses.

C. Q. 67. On the 30th day of May, and some time previously, didn't you crush the seed under rolls as the first step?

A. Yes.

C. Q. 68. And then moisten it?

A. Yes.

C. Q. 69. And then heat it?

A. Yes.

C. Q. 70. And then extract the oil by pressure in the presses?

A. Yes; some of it: all that we did extract.

C. Q. 71. Are not those the same steps in the process of making oil that you used on the 2d of June, and ever since?

A. That is the process to-day.

C. Q. 72. Didn't you at some time in the new mill use the

203 Fisher patent, or something similar to it, by which steam was injected from a perforated coil of pipe into the meal?

A. Yes; we used a perforated pipe to blow jets of steam into the meal.

C. Q. 73. I read from the specification of your patent: "The pressure on the seeds in the feed-tube is necessary, as the oil seeds would otherwise not feed readily into rollers revolving under great pressure." What does that mean?

(Objected to as improper cross-examination.)

A. Well, it means while the rolls are held so closely together, either by their own weight or other pressure, some means is necessary to get them to bite the seed. We accomplish it at one time by a column of seed in the supply-pipe.

C. Q. 74. Was there any other pressure than the weight of the seed itself in this pipe?

A. The weight of the seed only.

C. Q. 75. How was that seed fed to the rollers?

A. By a fluted feed-roller at the top of the supply-tube.

C. Q. 76. How long have you known William M. Force, of New Jersey?

A. I think it was almost in the early commencement of our business of making oil. I met him once.

C. Q. 77. When was that, and where?

A. Probably in 1866 or 1867. He called at our old Canal-street mill.

C. Q. 78. Were you ever in his mill in New Jersey?

A. Yes; in 1872 and in 1875.

C. Q. 79. Did you, at either time in Mr. Force's mill, see any experiments without mullers, or see them running the mill without mullers, either for all of the machinery or for a single set of the machinery?

204 A. I did.

C. Q. 80. Which time?

A. In 1875 I put the new process in his mill and set it to work; it was in March, 1875; the mill was built expressly for that purpose.

C. Q. 81. You mean you put in an outfit of machinery according to your plan?

A. I furnished Mr. Force with designs, and he had his machinery built there; I had nothing to do with building it; he came after me in March, 1875; I went down with him, had some alterations made, and the mill was started under the new process.

C. Q. 82. Do you know of their operating in that mill without the mullers at any time before that?

A. Yes; I do from what I was told and saw; I was told by Mr. Force.

C. Q. 83. What did Mr. Force tell you?

A. He told me they could not do anything.

C. Q. 84. When did he tell you that?

A. I will give you the exact date—on the 17th day of March, 1875.

C. Q. 85. What had they done?

A. I can't tell; I don't know what they done; I can tell the conditions of things I found when I got down there.

C. Q. 86. What did Mr. Force tell you they had done, or tried to do?

A. The general point was that he had tried to work seed by the new process and couldn't do it.

C. Q. 87. You mean he had tried it without mullers?

A. Yes; that is the new process.

C. Q. 88. When you saw him, in 1867, did you have any conversation with him about dispensing with the mullers?

205 A. No; not a word.

C. Q. 89. When you saw him, in 1872, did you have any conversation with him of that kind?

A. No.

C. Q. 90. Did you ever have any communication with him, by letter or any other way, on that subject?

A. Yes.

C. Q. 91. What and when?

A. Prior to building of his new mill, in 1874; both by letter and by interviews; I cannot give the dates.

C. Q. 92. Did he ever suggest to you any improvements in any parts of the apparatus or process?

A. He did in the apparatus.

C. Q. 93. What?

A. Fisher's invention—the steam-coil.

C. Q. 94. Any other part?

A. No.

Redirect examination by J. W. MUNDAY, Esq.:

Q. 1. How did it happen that when you moved the machinery from the old mill to the new mill that you did not set up then or afterwards the muller-stones of the old mill in the new mill.

(Objected to as not redirect and immaterial.)

A. There were several reasons: one was the lack of room, another was the lack of time; we didn't set up any of the machinery until long after we moved it; we were building a large building.

Q. 2. Were the muller-stones, including the two muller-stones and the bed-stone, removed from the old mill to the new mill?

A. The two running stones were moved; the bed-stone was never moved by me; it was broken in getting it out.

206 Q. 3. How did Mr. Force come to build his new mill in which he used the new process, if you know?

A. All I know about it is what influence I exerted upon him.

Q. 4. What were your relations to Mr. Force, and why should you seek to influence him to adopt the new process in 1874?

A. We were doing a large business with Mr. Force. We borrowed a good deal of money of Mr. Force and his firm, and he agreed to pay me a royalty for the use of this process. These were the three important elements.

Q. 5. You say you went down to see his mill in which he had been trying to use the new process, what condition did you find things there?

A. Everything was wet, except the meal they were trying to wet. Mr. Force's expression was, that the mill was rotting down over his head.

Q. 6. When was this?

A. March, 1875.

Recross-examination by Mr. SHEPHARD:

C. Q. 1. So far as you know, do not all the oil-mills in the country use the four successive steps of crushing the seed, moistening it, heating it, and pressing out the oil, and have they not all of them always done so?

(Objected to as improper cross.)

A. So far as I know, they have not used it.

C. Q. 2. What have they used?

A. They have used other steps in the process, so that it has not been these steps successively. I have known a good many mills crush seed in the rolls, ground and moisten it in the muller-stones, heated it, and pressed it.

207 C. Q. 3. Then, those four steps have always been used, so far as you know, in all mills making oil mechanically—I mean, as distinguished from the chemical process?

A. Crushing, heating, moistening, and pressing have always been used, so far as I know.

A. B. LAWTHER.

208 *Extracts from Complainant's Exhibit "Lawther Book," Pursuant to the Stipulation of the Parties of August* 12, 1884.

Page 12.

April 15, '73:

Tests for yield of oil for thick & thin cakes & for 10 & 13 rings pressure, analyzed by M. B. Manwaring April 25, '73:

No. 1	13 x 32	W't, 11 lb	Oil, 11.250%	Water, 8.750%
" 2	13 x 32	" 9 lb	" 10.833%	" 8.750%
" 3	13 x 32	" 13 lb	" 10.833%	" 8.750%
" 4	10 x 32	" 9 lb	" 10.416%	8.333%
" 5	----	Seed.	----	7.916%

Previous test of sample cake, 10.416%.

Other cakes: Force ------ 10.833
Do. ------ 10.000
Do. ------ 12.083
Do. ------ 10.833

Philad. ----- 10.416
Indianapolis, 10.208

Kellogg & Miller, 2 { 10.401 / 10.416
Colgate --- ----- 2 { 12.498 / 12.083
Griswold & D.--- 2 { 11.250 / 11.340

April 22.—The differences in the tests seem to indicate that the same apparent work does not always produce the same results. Either the tests cannot be correct or else the work is bad.

209 Page 15.

May 9th, 1873:

Samples of cake for analysis:

No. 6, 10 R., 13 x 32, 30% wheat (W. J. Lytle).
Yield oil, 12½ @ 13 lb; oil, 9.$\frac{583}{1000}$; water, 8.333.
No. 7, 10 R., 13 x 32; O., 8.750; W., 8.958.
8, 11 R., 13 x 32; O., 9.375; W., do.
9, 11 R., 9½ x 30, = to 16 R. on No. 8; O., 9.583; W., 8.958.

8 & 9 in one press; No. 7 in preceding press; meal nearly hot; in good condition.

1 rupee = 16 annas = 50 pice.
Value, £0 1s. 10½d. = £0.453¾.

1 maund = 74 lbs. 10 oz. avoi-dupois = 1⅓ bus., very nearly.
1 anna = .0284 gold.

May 20th, 1873:

Sample No. 10, cake from white seed; yield of oil, 17¼ lb.
" 11, of white seed.
To Manwaring for test, by express.

Page 19.

Sept. 17, '73:

Maanwaring, analysis of—

210 Hardy, Metzger & Co., cake (hair mats) { % oil .... 11.250 / water .. 8.333
Do. do. do. iron " { % oil .... 10.625 / water .. 8.333

W. & L., box presses ..... { 13.750 / 8.333
" plate " ..... { 10.625 / 8.541

Cash to Manwaring, $50.00.

Sept. 29.—Manwaring claim- £58 due.
Promise- to pay & stop further business under this deal.

Write Bushnell & Bull, Ottawa.
" Force.

Sept. 27.—English; here.

Page 21.

Oct. 16 & 17, '73:

Cake tests:

Box presses .... 12.95 × 13.20 × 13.30
Reworked 9.70 9.40

Plate presses (old dry cake, Reg.), 9.20 (⅓ cake, ⅔ meal, 9.20).

E. W. Blatchford, usual way, 2 hours 10.78
Same sample, " warmed," & ext. 2 hours longer .. .20
10.98%

211 E. W. Blatchford, tested for 24 hours 12.16
W. & L., plates, ⅔ seed, ⅓ box-cake, 24 hours.. 9.72

For details see next page.

Dagget & Martin, 1 sample cake from iron mats.. 10.22

Oct. 22nd.—Operation continued 18 hours; evaporated — fire heat.

Page 22.

E. W. B. & Co. W. & L.
No. 1 drip.
10% 8.34%

Exhausted by 180 grams, B : S. C.; ¾ hour; evaporated by steam heat.

No. 2 drip.
12% 9.10%

Exhausted by 60 grams more, B : S. C.; time, 1 hour; evaporated by steam heat.

No. 3 drip.
11.92 9.58

Exhausted by 60 grams more, B : S. C.; time, 3 hours; long exposure to steam heat.

No. 4 drip.
12.16 9.66

Exhausted by 60 grams more, B : S. C.; thoroughly evaporated by steam heat; made 14 hours after No. 3.

12.12 9.66

212 Evaporated by fire heat:
12.16% 9.72%

Results corrected for weights of dishes.

Page 23.

Oct. 22, '73:

183 lbs. cake of 9½% ---------- 17.385 lbs.
56½ " oil ---------- 56.5

239.5 73.885

Or 30.85%.
Actual test of sample of meal when ready for presses gave 31.04%.
The difference equals about ½ lb. oil.

John Jewell, use 1 y'd cloth to 270 gals. oil; think contin'd pressure will take twice as much cloth.

Test of seed from rollers about 36% merchantable oil.
Test of oil from press showed about $\frac{3}{10}$% of water at 270° F.

Oct. 30, 1873.—Offered Geo. W. Wermer, Des Moines, Iowa, presses & machinery for $5,000, including rollers. A. B. L.

213 Page 24.

November 1st, 1873:

Test of cracklings:
% by ordinary evaporation, 42.620.
% " evaporation at 310° F., 40.620.

Sunflower with shells:

% by ordinary evaporation, 26.180.
% " evaporation at 330°, 25.300.
Seed at 25% & cake at 10% = 9⅓ lbs. oil for presses.
Shelled seed at 50% & cake at 10% = $12\frac{45}{100}$ lbs. oil for presses.
For each bus. of 56 lbs. No allowance for water or waste in working.

Nov. 10:

2 brooms to floor.
1 " to press.
& 2 old ½ worn to do.

Page 29.

May 25, 1874—9 a. m. to 3 p. m.:

Fire heat.
13 rings yield 15^{35}—¾ lb S. $C._2$—6 hours, 8.6%.
10 " " 15^{17}—¾ lb S. $C._2$—6 hours, 9.34%.

Average from 2 tons meal, 4.30 p. m.
to 6 "
And left full of B1′ S., 9%.

May 26:

13 rings contained ¼ lb. C. $S._2$, 8.74.
214 10 " spitt.—estimate same increase = 9.48.

Average meal continued from 8 a. m. to 11 a. m.
This cake made with 10 rings, 9.86.

Second test, same against E. W. B. & Co. meal:

From 3.30 p. m. to 6 p. m.:
4 hours ---------- 10.8. Contained some meal.

W. & L., next morning 9.30. Refiltered.

E. W. B. & Co., { 2 hours 10.8
2 " .6
Next morning .54

Total ---------- 11.94%

Very accurate & certainly right.

Page 30.

May 30 & 31, 1874:

Test for oil, one sample cake:
9.92

Test continued long time very thoroughly.

Test of 15 cakes, June 4, 1874:
Cake made June 2:

W't cake from press ------ 164.5
" oil ------ 67.5
232.0

W't of cake, June 4 ------ 163
loss drying ------ 1.5 About 1%.

Cakes ground together & average sample taken:

First evaporation ---------- 8.56
Second " by fire ------ 8.30

Siebel's test, 8.64%.

215 May 23 & 24:

Cake ------ 154
Oil ------ 63
217 Test, $9\frac{1}{10}$%.

Page 31.

July 26 & 31:

Cake, $169\frac{1}{2}$ { first test, 8.44%.
Oil, $71\frac{1}{2}$ { second test, 8.60.

Seed crushed with 2 setts rolls 4 & 5 high, 10 rings pressure.

August 14, '74:

Test of fair seed, 34.8%.

Test of cake:

Yield of oil, 14.55 lbs. Test, 8.74%.

August 20:

Test: Yield oil, 14.79. Cakes, 9.4%.

H. Bailey & Co., cakes, first drip ---------- 12%
Cakes very coarse, soft, flaky, last drip ------ .54
12.54%

216 And now, at this same term, to wit, January term, 1884, and on the one hundredth day thereof, to wit, on the second day of June, A. D. 1884, the following proceedings were had, to wit:

ALFRED B. LAWTHER
v.
CHARLES S. HAMILTON & TIMOTHY W. GOODRICH. } In Equity.

This day came the parties, by their counsel, and this cause having been heretofore heard upon the pleadings and proofs, on consideration thereof, it is ordered, adjudged, and decreed by the court that the bill of complaint in this cause be, and hereby is, dismissed, and that the complainant pay the costs, to be taxed, within ten days; or, in default thereof, that execution be issued for the same.

(Signed) CHAS. E. DYER, *Judge.*

Appeal.

August 13, 1884.—This day came the complainant, by his solicitors, and prayed an appeal to the Supreme Court of the United States, and filed his bond in the sum of three hundred dollars, secured by a deposit with the clerk of two hundred dollars of U. S. Government bonds, conditioned that he shall prosecute his said
217 appeal to effect and answer all damages and costs if he shall fail to make his plea good; which bond is approved by the district judge, and is as follows, to wit:

Appeal Bond.

Know all men by these presents that I, Alfred B. Lawther, of the city of Chicago, in the northern district of Illinois, am held and firmly bound unto Charles S. Hamilton and Timothy W. Goodrich in the sum of three hundred dollars, to be paid to the said Charles S. Hamilton and Timothy W. Goodrich, their heirs and assigns; to which payment, well and truly to be made, I bind myself, my heirs, executors, and administrators, firmly by these presents.

Sealed with my seal and dated this 11th day of August, 1884.

Whereas lately, at the January term, 1884, of the United States circuit court for the eastern district of Wisconsin, in a suit depending in said court between said Alfred B. Lawther and Charles S. Hamilton and Timothy W. Goodrich, a decree was rendered against said Alfred B. Lawther, and the said Alfred B. Lawther has taken an appeal to the Supreme Court of the United States to reverse said decree:

Now, therefore, the condition of this obligation is such
218 that if the above-named Alfred B. Lawther shall prosecute his said appeal to effect and answer all damages and costs if he shall fail to make his plea good, then the above obligation to be void; otherwise, to remain in full force and virtue.

A. B. LAWTHER. [SEAL.]

2 U. S. Government bonds for $100 each, Nos. 62945 and 97217, with coupons attached, from Oct. 1, 1884 (said bonds being four per cent. bonds), deposited as collateral security with the within bond.

EDW. KURTZ, *Clerk.*

Endorsed: Approved. Chas. E. Dyer, judge.

Whereupon it is ordered that said appeal be, and hereby is, allowed and a citation issued.

219 Circuit Court of the United States for the Eastern District of Wisconsin. In Equity.

ALFRED B. LAWTHER
vs.
CHARLES S. HAMILTON and TIMOTHY W. GOODRICH.

It is hereby stipulated that the record of this cause may be filed in the Supreme Court as soon as completed, and if the opinion of the circuit court shall not have been filed by the time the record is made up, then a duly certified copy of such opinion shall be filed in the Supreme Court as soon as may be after it is rendered, and such copy shall have the same force and effect it would have had if the opinion had been rendered previous to the making up of the record and duly incorporated therein.

It is also stipulated that the model Exhibits Nos. 1, 2, 3, and 4 and the Exhibit "Lawther's Book," all of which were introduced by the complainants, may, until the hearing in the Supreme Court, remain in the possession of the complainant's solicitors, but with the understanding that they shall be produced at such hearing.

220 It is further stipulated that the clerk incorporate in the record pages 12, 15, 19, 21, 22, 23, 24, 29, 30, 31 only of the Exhibit "Lawther's Book."

August 12, 1884.

MUNDAY, EVARTS & ADCOCK,
Sol'rs for Compl't.
DAVIS, RIESS & SHEPARD,
Solicitors for Defendants.

221 United States Circuit Court for the Eastern District of Wisconsin. In Equity.

ALFRED B. LAWTHER
vs.
CHARLES S. HAMILTON and TIMOTHY W. GOODRICH.

It is hereby certified that at the hearing of the above-entitled cause the only evidence considered by the court was the following:

For complainant:

Deposition of Sidney McDougall.
" " Alexander Hardy.
" " Charles A. MacDonald.
" " Clark Woodman.
" " Alfred B. Lawther.
" " Alfred B. Lawther (in rebuttal).
Complainant's Exhibit No. 1, model.
" " 2, "
" " 3, "
" " 4, "
" " A, patent sued on.
" " Lawther's Book.

For defendants:

Deposition of Joseph R. Evans.
" " A. C. Abbott.
" " C. S. Hamilton.
222 " " Cornelius Kimpler.
" " James Wright.
Defendants' Exhibit A (Fisher patent).
" " B (" reissue).
" " 3 (sketch of heater).
" " 4 to 37, inclusive (McDonald's letters, &c.

The foregoing certificate is correct.

MUNDAY, EVARTS & ADCOCK,
Compl'nt's Sol'rs.
CHARLES E. SHEPARD,
Defendants' Solicitor.

CHAS. E. DYER, *Judge.*

(Endorsed:) Filed August 18, 1884. Edw. Kurtz, clerk.

223 UNITED STATES OF AMERICA, } ss:
Eastern District of Wisconsin, }

I, Edward Kurtz, clerk of the circuit court of the United States of America for the eastern district of Wisconsin, do hereby certify that I have compared the writings annexed to this certificate with their originals now on file and remaining of record in my office, and that they are true copies of such originals and correct transcripts therefrom, being a full and complete transcript of the record and proceedings in the case of Alfred B. Lawther *vs.* Charles S. Hamilton *et al.*, in equity.

In testimony whereof I have hereunto set my hand and duly affixed the seal of the said court, at the city of Milwaukee, in said district, this tenth day of September, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the 109th.

[Seal U. S. Circuit Court, Eastern District of Wisconsin.]

EDWARD KURTZ, *Clerk.*

224 UNITED STATES OF AMERICA, *ss:*

[SEAL.] To Charles S. Hamilton and Timothy W. Goodrich, Greeting:

You are hereby cited and admonished to be and appear at a Supreme Court of the United States to be holden at Washington on the second Monday of October next, pursuant to an appeal in the circuit court of the United States for the eastern district of Wisconsin, wherein Alfred B. Lawther is appellant and you are appellees, to show cause, if any there be, why the decree passed against the said Alfred B. Lawther should not be reversed and speedy justice done to the parties in that behalf.

Witness the Honorable Charles E. Dyer, district judge of the United States for the eastern district of Wisconsin, this 13th day of August, A. D. 1884, and of our Independence the 109th.

CHAS. E. DYER, *Judge.*

We accept service of the above citation this 10th day of September, A. D. 1884.

DAVIS, RIESS & SHEPARD,
Solicitors for Defendants.

Endorsed on cover: E. Wisconsin C. C. U. S. No. 310. Alfred B. Lawther, appellant, *vs.* Charles S. Hamilton and Timothy W. Goodrich. Filed 22d September, 1884.

1 U. S. Circuit Court, Eastern District of Wisconsin. June 2d, 1884.

ALFRED B. LAWTHER

v.

CHARLES S. HAMILTON and TIMOTHY W. GOODRICH.

Munday, Evarts & Adcock, for compl't; Davis, Riess & Shepard & Fred. C. Winkler, for def'ts.

DYER, *J.:*

This is a suit to restrain the alleged infringement by the defendants of a patent granted to complainant September 28, 1875, No. 168,164, for an improvement in processes of treating oleaginous seeds.

In the specifications of the patent the patentee states that the object of his invention is "to improve the process of working, flaxseed, linseed, and other oil seeds in such a manner that a greater yield of oil is obtained at a considerable saving of time and power in the running of the crushing, mixing, and pressing machines, while also a cake of superior texture is produced."

2 The specifications proceed as follows: "Hitherto it has been the practice to crush the oil seeds between revolving rollers, and completing the imperfect crushing by passing them under heavy stones known as edge-runners or mullers, under addition of a quantity of water, the crushed and moistened seed being then taken from the muller-stones and stirred in a heated steam-jacketed reservoir preparatory to being placed in the presses for extracting the oil.

"This process has been found imperfect in regard to many points, but mainly on account of the overgrinding of portions of the seed and the husks or bran when the seeds were exposed for too long a time to the action of the muller-stones, so as to form a pasty mass and produce an absorption of oil by the fine particles of bran, while on the other hand the undergrinding, by too short on action of the stones, rendered the presses incapable of extracting the full

3 amount of oil from the seed.

* * * * * * *

"My process is intended to remedy the defects of the one at present in use, and consists mainly in conveying the oil seeds through a vertical supply-tube and feeding-roller at such degree of pressure to powerful revolving rollers that each seed is individually acted upon, and the oil-cells fully crushed and disintegrated. They are then passed directly, without the use of muller-stones, to the mixing-machine to be stirred, moistened, and heated by the admission of small jets of water or steam to the mass, and then transferred to the presses.

"The oil seeds are by my new process first conveyed to a hopper and fluted seed-roller at the top of an upright feed-tube of the crush-

ing-machine, by which the seeds are fed, under suitable pressure, to revolving rollers of sufficient power, which run at a surface speed of about one hundred and fifty to two hundred feet per minute.

"The pressure on the seeds in the feed-tube is necessary, as
4 the oil seeds would otherwise not feed readily into rollers revolving under great pressure. The oil seeds are thereby compelled to pass evenly and steadily through the rollers, which have, therefore, a chance to act on all of them and break the oil-cells uniformly without reducing any portion to a pasty condition. The bran is also left comparatively coarse, so that it shows the nature of the seed after pressing.

"The muller-stones and their over or under grinding of any portion of the seeds are entirely done away with by this mode, which makes not only the machinery less expensive, but produces also a saving of power required in running the same. The crushed seeds are next placed in a steam-jacketed reservoir of the mixing-machine, where they are stirred, moistened, and heated by perforated revolving stirrer-arms, which throw jets of water or steam into the mass so as to thoroughly permeate and mix the same. The
5 crushed and moistened mass is transferred to the presses for the extraction of the oil, which operation requires less power on account of the uniformity of the mass, produces a greater yield of oil, and furnishes an improved quality of oil-cake or residue, of open-grained, flaky nature, capable of being split in regular pieces at right angles to the direction of pressure."

Having thus described his invention the patentee states his claim to be "the process of crushing oleaginous seeds and extracting the oil therefrom, consisting of the following successive steps, viz., the crushing of the seeds under pressure, the moistening of the seeds by direct subjection to steam, and finally the expression of the oil from the seed by suitable pressure, as and for the purpose set forth."

Various grounds of defence to the bill are interposed, only one of which it seems necessary to consider, namely, that which disputes the validity of the patent as a patent for a process. The proofs show, and in fact it is undisputed, that formerly in the process of extracting oil from flaxseed the seed was subjected to the crushing and disintegrating action of the muller-stones, which consisted
6 of two large and very heavy stone wheels mounted on a short horizontal axis attached to a vertical shaft. By the rotation of this shaft the stones were caused to move on their edges shortly around in a circular path upon a stone bed-plate, with a peculiar rolling and grinding action, upon a layer of flaxseed placed on the bed-plate; this was the usual mechanical appliance in connection with the operating movement of the muller-stones. By this means such portions of the seed as came in contact with the muller-stones were reduced to a complete state of pulverization. To facilitate the disintegrating action of the muller-stones the seed was generally first more or less crushed by passing it through one or more pairs of rollers, thus better preparing it for the rubbing and grinding action of the muller-stones. The further treatment of the seed required the application of heat and moisture, and this was accomplished in

various ways. Sometimes the heat & moisture were applied by a steaming device before the seed was crushed by the muller-stones; sometimes the seed was moistened when it was under the
7 action of the muller-stones by sprinkling water upon the layer of seed beneath the stones, the heat being applied afterwards by a separate operation. At other times both heat and moisture were applied after the seed had been run through the mullers and was in the form of meal in the heater.

As the last step in the process the seed thus crushed and disintegrated, and in moist and warm condition, was usually placed in hair-cloth mats or bags and subjected to hydraulic pressure, by which means the oil was extracted.

This was the state of the art and this the usual process when the complainant obtained his patent. Stating his improvement in the mode of treating the seed most favorably for the claim he makes under his patent, it consists in first crushing the seeds by the pressure of revolving rollers but without the grinding or triturating action of the muller-stones, so that, as it is claimed, each seed and each oil-cell is crushed without pulverization and without destruction of the hulls beyond the bursting and flattening
8 of the same. Then the seed thus crushed is subjected to heat and moisture, the moisture being applied in the form of finely separated jets of water or steam; and, as a last step, the material thus prepared is placed in pervious mats or molds and subjected to pressure in a suitable hydraulic press. By this process it is claimed that greater certainty is attained in suitably crushing the entire mass of seed, and also that from a given quantity of seed a larger flow of oil is produced than from an equal quantity subjected to the action of muller-stones, and it must be admitted that the proofs tend to sustain this claim.

The main improvement alleged is that the invention dispenses with the use of muller-stones. While this is claimed as a process there is no description given in the specifications of the vertical supply-tube, the feeding roller, the revolving-rollers, the mixing-machine, the steam-jacketed reservoir, or the muller-stones, and we think there may be a question whether there is a sufficient description of the means used to effect the process which
9 is claimed as the complainant's invention. Then the claim is the process of crushing oleaginous seeds and extracting the oil therefrom by three steps successively—the crushing of the seeds under pressure, the moistening of the seeds by direct subjection to steam, and, finally, expressing the oil from the seeds by suitable pressure, as and for the purpose set forth. This would seem broad enough to embrace every method of extracting oil from flaxseed known in the prior state of the art, and it is, perhaps, doubtful whether a claim so general and indefinite is valid; but, without deciding these points, having seen what was the state of the art before the complainant obtained his patent, and conceding everything contained in the patent itself, what new patentable process can it be said the patentee discovered or invented? The alleged invention seems to us only to consist in the omission of the muller-stones as one of

the means of applying the necessary pressure or crushing force to the seeds, and the use of the mullers was previously but part of one of the steps that always had to be taken in preparing the seed for the extraction of oil therefrom. It may be true that by the omission of the muller-stones certain injurious effects upon the seed produced by the alleged grinding or tearing action of the stones are avoided; but this would seem to be due rather to a change in mechanical appliances than to the discovery of a new and original process in the sense in which that term must be here considered and understood. The crushing of oleaginous seed so that ultimately it may be in condition for the application of hydraulic pressure was always a step, and necessarily the first step, in the process of extracting the oil therefrom. As we have seen, that step was formerly accomplished by means of rollers and muller-stones. The complainant ascertained by practice that in crushing the seed the tearing, pulverizing action of the muller-stones was injurious, and so he dispensed with that mechanical operation in the crushing step of the process, and employed the rollers alone. He thereby simply omitted one of the instrumentalities previously used in the first stage of treatment of the seed. This was undoubtedly a useful improvement, but it was not the invention or discovery of a new process. Each step in the process existed and was known before, namely, crushing the seed, heating and moistening it, and finally the application of hydraulic pressure. What the complainant accomplished was a change in mechanical appliances and operation, by which an existing process and each step thereof were made more effective in its results. For this he may have been entitled to a mechanical patent. It is claimed that the new thing discovered by Lawther was that the hulls or shells of the flaxseed could be utilized to form channels by which to convey the oil out from the mass of prepared seed, which result it is said was attained by omitting the muller-stones and using the rollers in the first step of crushing the seed; but if such a result was produced by dispensing with the muller-stones it does not follow, we think, that this was the invention of a new process. The oil finally extracted from the seed was the product of an old process, the better results being attributable to a change in the mechanical appliances employed in the first step of the process, namely, the crushing of the seed. No new step was discovered by the patentee. According to the specifications in his patent, first, revolving rollers were employed, then muller-stones, in the first essential step of crushing the seed. He discovered that more advantageous results were attainable by dispensing with the use of muller-stones, and that these results were also promoted by the improved construction of the rollers and other mechanical appliances for heating and moistening the seed is quite apparent. The discovery or invention was not of a new series of acts or steps constituting a process, but only of certain mechanical changes in carrying into effect the well-known old steps of the process.

For these reasons we are of the opinion, notwithstanding the very

able brief submitted by counsel for the complainant, that the patent in question cannot be sustained as a patent for a process.

Bill dismissed.

Judge Drummond concurred.

[Endorsed:] U. S. circuit court, east. dist. Wisconsin. Lawther *v.* Hamilton *et al.* Opinion.

13 UNITED STATES OF AMERICA, *Eastern District of Wisconsin,* } *ss:*

I, Edward Kurtz, clerk of the circuit court of the United States of America for the eastern district of Wisconsin, do hereby certify that I have compared the foregoing with its original now on file and of record in my office, and that the same is a true and correct copy of the opinion of said court in the case of Alfred B. Lawther *vs.* Charles S. Hamilton *et al.*, to be attached to the transcript of record in the Supreme Court in said case pursuant to the stipulation annexed thereto.

In testimony whereof I have hereunto set my hand and duly affixed the seal of the said court, at the city of Milwaukee, in said district, this 22nd day of October, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the 109th.

[Seal U. S. Circuit Court, Eastern District Wisconsin.]

EDWARD KURTZ, *Clerk.*

14 [Endorsed:] U. S. circuit court, E. dist. Wis. Alfred B. Lawther *vs.* Charles S. Hamilton *et al.* Certified copy of opinion. Fees, $3.00.

[Endorsed] Sup. court U. S. 1886, Oct'r term. No. 310. Alfred B. Lawther, app'l't, *vs.* Chas. S. Hamilton *et al.* Certified copy of opinion of U. S. circuit court.

[Stamped:] Office Supreme Court U. S. Filed May 4, 1887. James H. McKenney, clerk.

Office Supreme Court U. S.
FILED.
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JAMES H. McKENNEY.
CLERK.

IN THE

Supreme Court of the United States,

OCTOBER TERM, A. D. 1886.

No. 310.

ALFRED B. LAWTHER,
Appellant,
vs.
CHARLES S. HAMILTON AND TIMOTHY W. GOODRICH,
Appellees.

Appeal from the Circuit Court of the United States for the Eastern District of Wisconsin.

BRIEF FOR APPELLANT.

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COUNSEL FOR APPELLANT.

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Appeal from the Circuit Court of the United States for the Eastern District of Wisconsin.

STATEMENT OF CASE.

This is a bill brought by the appellant to restrain the appellees from infringement of Letters Patent of the United States, No. 168,164, for Improvement in Processes of Treating Oleaginous Seeds, granted to the appellant, Alfred B. Lawther, September 28, 1875.

The court below while admitting that what the patentee did "was undoubtedly a useful improvement," dismissed the bill on the ground that the patent could not be sustained as a patent for a *process*.

There is no evidence in the record impeaching the utility of the patented process. On the contrary, the testimony is uniform that by use of the patented process from one to two pounds more oil per bushel of seed is produced than by the old processes previously in use.

There is no evidence in the record impeaching the novelty of the patented process. Indeed the answer sets up no prior patents showing it or prior uses of it. The evidence shows and the answer also alleges that the several different machines or implements, steaming kettles, hydraulic presses and pressure rollers, which are or may be used for performing the several steps of the patented process are each in themselves individually old and well known to, and had been previously used by various persons; and one prior patent, No. 129,018 and its re-issue, No. 8,615, to W. B. Fisher, is set up in the answer, and offered in evidence as showing the steaming kettle.

The evidence shows, and the answer alleges, that one of these several old and well known implements or machines employed by the defendants in their infringing use of the patented process was bought of complainants' agent. In the court below it was contended that this purchase gave defendants the right to use the entire patented process without royalty. But it also appears from the testimony that this machine was capable of use in other processes than the patented one. And it was not alleged or contended that an actual license to use the patented process was ever given.

The use by the defendants of the patented process is clearly established by the testimony. Infringement of the claim, if it be valid, was not seriously contended in the court below and we assume will not be here.

The question upon which the case turned in the court below is therefore doubtless all that this court will be called upon to consider:

Is the new method of treating oleaginous seeds disclosed in the patent, patentable under the law as a process?

Assignment of Errors.

1. The court below erred in holding that the patent in question cannot be sustained as a patent for a process.

2. The court below erred in dismissing the bill and finding the equities in favor of the defendants.

Brief of Argument.

I.

THE NATURE OF THE IMPROVEMENT.

In order to extract the oil from flaxseed it had always been customary, prior to Mr. Lawther's invention, to *grind* the seed into a powder, meal or flour, the exterior casing or shell of the seed being pulverized as well as the interior part. The second step was to heat and moisten the ground seed; and the third or final step was to express the oil in a press.

The change made by Mr. Lawther consisted in substituting for the pulverization and grinding of the seed a simple *crushing or flattening by pressure*, which would leave the shell of the seed in the meal, the other steps of the process being virtually the same.

The NEW THING first demonstrated by Mr. Lawther was that the hulls or shells of the flaxseed could be utilized to form channels by which to convey the oil out from the mass of prepared seed when the same is in the press. Previous to Lawther, no such use had been made of these shells or hulls. On the contrary, in the preparation of the seed for the press, it had been the constant and invariable practice in the old art to destroy the hulls by tearing them into fragments by means of muller stones, which were used for grinding the seed, and sometimes also in addition for mixing water with it. Mr. Lawther was the first to discover that a greater yield of oil

could be attained if the hulls were not torn to pieces or ground up. He was the first to bring the mass of prepared seed to the press with the hulls in a flattened condition, so that the half shells would operate to produce a laminated or flaky cake when pressure was brought to bear upon it, the shells or hulls arranging themselves, by a natural law of force in parallel laminæ, at right angles to the direction of pressure, and thus forming seams or channels, so to speak, to permit the oil to free itself from the mass more readily.

From the very nature of this discovery it would appear that all of the advantages thereof may be reaped by a variety of tools or machinery. The first thing required in any process or method of expressing oil from seed is the destruction of the microscopic oil cells, so that the oil may be liberated. And of course these oil cells must be destroyed by force of some kind. The Lawther method of destroying the cells is by crushing them *under pressure* as contradistinguished from *trituration, grinding* or *tearing*. The object of employing this particular form of force, *pressure*, is to preserve the hulls or shells as far as possible in a whole condition. The thing he seeks to avoid is grinding, tearing and trituration. Now, the pressure to accomplish this desired end may obviously be applied by rolls, by moving jaws, or by many kinds of machines.

The next thing required in any process or method of expressing oil from seeds is moistening the mass of seed. The old process accomplished this by steam or jets of water, and also frequently by using the muller stones not only as grinders, tearers or triturators, but also as mixers to mix the water with the seed. Lawther uses steam or, as an equivalent, stated in the specification as such, finely

divided jets of water, because by so doing he is able to thoroughly mix the moisture with the mass without liability of thereby producing a pasty condition and grinding the hulls or tearing the same to small fragments. It is quite obvious that steam or finely divided water jets may be thoroughly mixed with the mass of seed by a great variety of different kinds of machines or tools, which will have no tendency to tear or grind the hulls. So, too, there are many kinds of apparatus for heating the seed, and many kinds and forms of presses for applying to the mass suitable pressure, which may be used indifferently in both the old and new process.

The result of the change made by Mr. Lawther is that when the oil cake is in the press the oil flows more freely and perfectly from the flaky cake, containing the flattened and bursted hulls or shells than it did from the pasty mass and homogeneous cake formed of seed which had been ground. And more oil is extracted from the same amount of seed.

Sidney McDougal (see his deposition*) says that his factory which works up about 1,500 bushels of seed per day effects a saving by the new process as compared with the old of something more than a pound of oil per bushel, the daily saving at that factory alone amounting to about $160. Alexander Hardy (see his deposition) says he saves about one pound of oil to the bushel of seed. Clark Woodman (see his deposition) says that he saves about two pounds of oil or about one quarter of a gallon to the bushel of seed over what he was doing by the old process. Mr. Lawther himself (see his deposition)

*NOTE.—As it was not expected that the case would be reached this term the record was not printed in time for use in preparation of this brief.

says that the saving by his process over the old methods approximates one-quarter of a gallon of oil to the bushel of seed. He also states thirty-one linseed oil mills have now adopted his process and are using the same under his authority. These mills have a capacity of about four and one half million bushels per year, and at the then present price of oil the saving of these mills over what they would be enabled to produce out of the seed under the older processes and methods would aggregate one-half million dollars per annum. We submit it is such valuable results as are here indicated that the patent law was designed to promote.

The old process consisted—in that form in which it came nearest to Mr. Lawther's process—in three steps, viz:

First, the seed was ground; *second*, the meal or pulverized seed was simultaneously heated and moistened by steam or vapor; *third*, the moist warm meal was put into the press and the oil squeezed out of it, as far as possible.

The new process consists also in three steps, viz:

First, the seed is crushed by pressure; *second*, the pressure-crushed seed is heated and moistened by steam in the same manner as in the old process; and *third*, it is put into the press and the oil squeezed out of it, a considerably larger amount of oil being extracted.

The difference between the old process and the new process is all found in the first step of each, and is the difference between crushing the seed by pressure, which leaves the shells or hulls in the meal almost entire, and grinding, which pulverizes the hulls as well as the interior or farinaceous portion of the seed. The old pro-

cess brings the meal to the press in condition to produce a homogeneous cake from which it is difficult to squeeze the oil, while in the new process the cake in the press has a flaky character as the shells naturally arrange themselves in planes at right angles to the direction of pressure, and the oil flows out of this laminated structure with greater freedom. Result of the new process, an increased yield of oil over the old for every bushel of seed treated.

One source of confusion in the case has been the fact that in some instances in the old process as a part of the first step or *grinding* the seed, it had long been customary to crush the seed by pressure in order that the grinding stones might get a better chance to do their work. That is to say, the grinding consisted of two operations. 1st, crushing the seed with rollers; 2d, grinding the crushed seed between stones. We prefer to consider this compound operation as a single step for the purposes of the argument, because the result of it was the grinding of the seed, the crushing in fact being merely to facilitate the grinding. And whether the seed were ground by the action of the stones alone, or by the compound action of rollers and stones, would make no difference, as in either case the meal would reach the press in a ground condition instead of in a crushed condition; and the oil cake in the press would be the non-laminated and comparatively impervious cake of the old process, instead of the laminated, flaky and more perfectly pervious cake of the new process.

II.

THE PATENTABILITY OF THE SUBJECT-MATTER.

The subject-matter of the patent sued upon is a process in terms. The patent is entitled, "Improvement in Processes of Treating Oleaginous Seeds." It describes at length a process, consisting of certain steps or operations to be performed upon the seed in a certain order. It distinguishes between the new manner and the old manner by reference to the effect at different stages upon the seed. Where mechanism is alluded to or described it is done incidentally, and the mechanism referred to is of old and well-known forms to those skilled in the art. The sole claim of the patent is in terms for a process, and is in these words, to wit:

"The process of crushing oleaginous seeds and ex-
"tracting the oil therefrom, consisting of the following
"successive steps, viz: The crushing the seeds under
"pressure, the moistening of the seeds by direct subjec-
"tion to steam, and, finally, the expression of the oil
"from the seed by suitable pressure, as and for the pur-
"pose set forth."

Obviously, this patent cannot be sustained at all, unless it be sustained for the process described and claimed. It must either stand as covering the process claimed, or fail absolutely.

That the method of procedure here indicated is an improvement of great value in the art of treating oleaginous seed is shown beyond controversy and must be admitted. That it is a radical change in the methods theretofore in

vogue is indicated not only by the valuable result achieved in the increased yield of oil, but also, and perhaps even more forcibly, by the fact that it dispenses entirely with the most cumbersome piece of machinery that had previously been employed in an oil mill, viz: the great grinding stones. And still further by the fact that it has largely superseded all other methods. But chiefly by the fact that the new process makes a practical application of a principle or natural law entirely new to the art of extracting oil from seeds, to wit: the principle that liquids will flow more readily through or out of a laminated or stratified structure than an unlaminated or homogeneous structure. The new process, by reason of the thin, flat, undestroyed hulls, produces a laminated and flaky cake; the old process produced an unlaminated cake.

The claim of the patent, when taken either alone or in connection with the specification which precedes it, refers to and includes a certain series of operations performed upon the seed in a certain definite order. It seems to us impossible that the expression used in the claim, "*crushing* "*under pressure*," even if it stood nakedly and alone, could be understood by anybody to mean trituration or grinding. Much less can it be so understood or construed in view of the explicit explanations contained in the body of the specification, wherein these two actions are carefully distinguished from each other, and the injurious effects of the grinding or trituration of the old muller stones pointed out. It is quite true that in the older art it had been customary to crush the flaxseed under pressure preparatory to grinding it under the muller stones. Indeed, the specification itself states this. But it had apparently never occurred to anybody that it was possible to take the crushed seed through the subsequent steps of

the process and extract the oil from it without grinding or pulverizing. Still less did it occur to the old practitioners that a large increase in the yield of oil would result from such treatment. Whenever in the older art the seed were crushed under pressure as a first step, the second step was always treatment under the muller stones, the crushing was merely an adjunct to the grinding, a part of the grinding operation.

The court below took the view that as it had been common in the older art to first crush the seed by pressure, to secondly grind the seed under the muller stones, to thirdly heat and moisten the seed by steam, and to fourthly express the oil, that Mr. Lawther's improvement consisted in simply omitting the muller or grinding stones from the machinery of the mill, and was therefore only a change in the machinery used, and not a change at all in the process. The court below in its opinion says:

"The crushing of oleaginous seed, so that ultimately it "may be in condition for the application of hydraulic "pressure, was always a step, and necessarily the first "step, in the process of extracting the oil therefrom. As "we have seen, that step was formerly accomplished by "means of rollers and muller stones. The complainant "ascertained by practice that in crushing the seed the "tearing, pulverizing action of the muller stones was "injurious, and so he dispensed with that mechanical "operation in the crushing step of the process, and "employed the rollers alone. He thereby simply omitted "one of the instrumentalities previously used in the first "stage of treatment of the seed. This was undoubtedly "a useful improvement, but it was not the invention or "discovery of a new process. Each step in the process "existed and was known before, namely, crushing the

" seed, heating and moistening it, and finally the applica-
" tion of hydraulic pressure."

(*Vide* Fed. Rep., Vol. 21, page 814, where the opinion herein is reported.)

It is true that Mr. Lawther dispensed with the muller stones, and it is also true that he used the rollers of the prior art, but it does not follow that to reduce seed by crushing it and then grinding it, is the same thing as to reduce seed by crushing it alone. The result of the act of crushing seed under pressure is crushed seed, while the result of the act of crushing seed and then grinding it is ground, pulverized or powdered seed. And where in the older art the seed was reduced by both the rollers and the mullers, it was obviously even more finely ground and more completely pulverized than when the muller stones were used alone. It would not matter how the seed was reduced to a ground condition, if that were the result sought and attained, nor by what machinery. And it cannot matter in the new process how the seed is brought into the condition called " crushed under pressure." The first step or thing done to the seed under the old art, when the act was finally completed, amounted to reducing the seed to a powdered condition. While the first act done by Mr. Lawther, when it was finally completed, amounts to a reduction of the seed to that condition wherein the shells or hulls of the seed remain flattened and bursted, but not ground up. The act done upon the seed in each case is different, and it would be a different act no matter by what instrumentality or machine it is performed. The court below admits that this change in the treatment of the seed " was undoubtedly a " useful improvement," and we think it follows that as the improvement was due to the change, the change is a

patentable one; because it was not an obvious change, as is self-evident from the fact that the linseed millers had been going on for years expensively and laboriously grinding their seed by cumbrous machinery at an actual loss of oil, without apparently ever attempting to make the change until its importance and value was brought to their attention by Mr. Lawther. It is quite true, as the court below says, "that Mr. Lawther simply omitted one "of the instrumentalities previously used in the first "stage of treatment of the seed," but we submit that this omission amounted to an entire change of the first stage of treatment. By this omission the first stage of treatment, when completed, represented as a whole a different act done upon the seed, and presented the seed to the steamer and the press in an entirely different condition. If this different act done upon the seed—no matter by what instrumentality—when taken in connection with the other acts done upon the seed in the two subsequent stages of treatment, does not constitute a process or whole series of stages of treatment or steps, it is difficult to understand what would constitute a process. It certainly amounts to an improvement in the art of treating oleaginous seeds, and as such it is patentable independently of the old machinery employed.

Cochrane v. *Deener*, 4 Otto, 780.
Tilghman v. *Proctor*, 102 U. S., 707.

This court has said—in *Cockrane* v. *Deener*, *supra:* "A process is a mode of treatment of certain materials to "produce a given result; it is an act or a series of acts, "performed upon the subject-matter to be transformed "and reduced to a different state or thing. If new and "useful it is just as patentable as is a piece of machinery, "In the language of the patent law it is an art. The

" machinery pointed out as suitable to perform the pro-
" cess may or may not be patentable, while the process
" itself may be altogether new and produce an entirely
" new result. The process requires that certain things
" should be done with certain substances and in a certain
" order, but the tools to be used in doing this may be of
" secondary consequence."

The Lawther patent, testing it by the foregoing, sets forth a mode of treatment of the certain material known as oleaginous seed, which mode of treatment is to produce a given result, *i. e.*, to increase the yield of oil by bringing the meal to the press in the flaky condition described. This mode of treatment consists of an act or series of acts performed upon the seed to bring the seed to the press in a different state or condition from what it was ever before brought to the press, producing from one to two pounds of oil more per bushel of seed than had ever been produced before by any other mode of treatment. And we submit, therefore, that it is a patentable improvement in the art of treating oleaginous seed.

That the increased yield of oil in the new process is due to the flaky and laminated form of the cake, and that this flaky laminated cake is due to the crushing by pressure as contradistinguished from the grinding of the seed, is obvious and self-evident. It is, however, also shown by the testimony to be the fact. The witness, Sidney McDougal, a practical linseed miller, who has used in his mill both the old and the new process, says:
" C. Q. 26. To what particular part of the present pro-
" cess do you attribute the saving of oil? A. To the
" manner of crushing with rolls and the applying the
" steam to it, *leaving it in a spongy condition*, whereas the
" use of the muller stones glued the seed together.

"C. Q. 28. How does the manner of crushing the "seed by the Lawther process tend to save anything; by "the thoroughness with which it is done, or by anything "peculiar in the process? A. Well, it crushes it, "flattens the seed out, opens the pores, so that when it is "put into the press it allows the oil to run out better, we "think, than when run through muller stones, which "glues it up.

"C. Q. 29. Isn't it simply the difference of thoroughly "crushing that makes the difference? A. No, I think "it is the manner of crushing that makes the difference." See also the depositions of Woodman and Lawther.

Counsel, in argument below, sought to fix the merit for the increased yield of oil upon the "five high rolls" shown by the model and used and introduced generally by Mr. Lawther for crushing the seed under pressure. These rolls are slightly different from the rolls indicated in the patent. The assertion of counsel that the merit is due to these rolls is not according to the proof. On the contrary, it does appear affirmatively that a mill at Amsterdam, New York, used a set of these identical five high rolls in the old process with the muller stones, and the results achieved were essentially the same as in the other old process mills of the country. (See first Dep. of Lawther.) And in addition to this it is obvious that, after the seed had been crushed by the pressure of the five high rolls, if it should then be put under the muller stones and ground it would reach the hydraulic press in a very different condition from that in which it left the rolls. In short the mullers would pulverize and glue it up, as the witnesses state.

The court below says:

"The alleged invention seems to us only to consist in

" the omission of the muller stones as one of the means of " applying the necessary pressure or crushing force to " the seeds, and the use of the mullers was previously " but part of one of the steps that always had been " taken in preparing the seed for extraction of oil there- " from."

Even upon such a statement of the case—it being conceded that the omission was productive of a valuable result—there would seem to be little ground to doubt the patentability of the change made.

We need only refer in this connection to the old and leading case of *Russel* v. *Cowley and Dixon*, 1 Web. Pat. Cases, 467, which involved Mr. Whitehouse's patent for a process of making gas tubes. Prior to Whitehouse's invention gas tubes had been made by the use of a mandril or internal support for supporting the joint on the inside while the tube was being welded by passing it through welding dies or rollers. Whitehouse discovered that the mandril could be left out and that no internal support was necessary. As a consequence of this exceedingly simple change he was able to produce the gas tubes of any length he pleased instead of being confined, as his predecessors were, to the length of a gun barrel, or about four feet. The validity of the patent was contested on the ground that, as Whitehouse had done nothing but *omit* the mandril from the old process, that this simple *omission* was not patentable subject-matter. The court however, held that it was patentable subject-matter. Moreover, the privy council subsequently extended this patent at its expiration for the additional term of six years.

The purpose of the patent law is to promote the progress of the useful art. The most useful form of any machine, device, process or art is the simplest which can

be given to it, provided the desired result can be equally well attained. He who simplifies a mechanical combination by taking away a part or element which had been formerly regarded as necessary, confers a benefit upon every succeeding maker or user of the machine, even if the machine works no better. The same may be said of one who removes a feature from a device or a step from a process. Mr. Lawther has not only removed a step from a process, thereby simplifying the same, but he has also produced a superior result, a greater yield of oil. Either advantage alone would be enough to support his title.

III.

THE CLAIM IN THE PATENT PRECISELY COVERS THE IMPROVEMENT MADE BY MR. LAWTHER, AND NO MORE.

The claim reads: "The process of crushing oleaginous seeds, and extracting the oil therefrom, consisting "of the following *successive* steps, viz: the crushing of "the seeds *under pressure*, the moistening of the seeds by "direct subjection to steam, and finally, the expression of "the oil from the seeds by suitable pressure, as and for "the purpose set forth."

Herein is clearly distinguished the means or process employed by Lawther to carry into practical beneficial effect his discovery. The process claimed differs from the prior art in this, that it calls for three steps taken in *a certain order*, never before observed. The first step is to crush the seeds in a special way, *under pressure*—that is, without grinding or trituration or tearing of the hulls. This step was never taken previous to Lawther by any-

body, because the crushing of the seed previously had always been either accomplished by or accompanied with grinding, tearing or trituration. The second step, the moistening, was never taken in this succession or order, because previously either the moistening was done under muller stones or after muller stones, never directly after crushing under pressure, as, for example, by rolls. So, too, as to the final step, the expressing of the oil. That never was done in the order or succession of the claim, because the order of all three steps could not be the same if the order of the two first were not the same.

In the language of the Supreme court, *Cochrane* v. *Deener*, *supra:* The process requires that certain things should be done, and in a *certain order*. The tools used may be of secondary conseqnence.

IV.

INFRINGEMENT.

There is no difficulty in this case in determining just what the defendants are using in the way of a process of treatment of their flaxseed. It appears that the defendants, although they used muller stones in their mill up to within a few months prior to the commencement of this suit, did then abandon the use of the stones and began to use the process they are now employing. In order to make it plain what the defendants are doing at their mill, models of a portion of the machinery used by them have been offered in evidence. We thus exhibit the apparatus used by them for crushing the seed and the apparatus for moistening and heating the same. But, be it understood we do not contend that the apparatus used by the defend-

ants for crushing the seed or for moistening and heating the same, are the same apparatus described for those purposes in the patent sued upon. For the purpose of crushing the seed the patent describes as a suitable apparatus a pair of rolls placed horizontally side by side, and a peculiar feeding device, for feeding the seed between them by means of its own weight, in a column, by reason of which manner of feed the rolls are enabled to grasp the seed and crush it with very powerful pressure.

The defendants do not use this exact device. They employ what is called a stack of five high rolls—that is, five heavy metal rolls, resting one upon another in such manner that the lowermost roll carries the weight of the superincumbent four. The seed is passed between the rolls consecutively, beginning at the top and finishing at the bottom. The final rolls act upon the seed consequently with great pressure, crushing it very thoroughly indeed, so that each individual seed is crushed and flattened.

The steaming and heating apparatus used by the defendant is also different in some respects from the one suggested as suitable in the patent. The patent describes a steam jacketed reservoir, into which the crushed seeds are placed, and "where they are stirred, moistened "and heated by perforated revolving stirrer arms, which "throw jets of water or steam into the mass so as to "thoroughly permeate and mix the same." A model of this device is in evidence, marked "Complainant's Ex-"hibit No. 2." The apparatus corresponding to this employed by the defendants is also in evidence, in the form of a model, "Exhibit No. 4." This latter apparatus is contrived also to stir, moisten and heat the seed by throwing "jets of water or steam into the mass so as to

"thoroughly permeate and mix the same." The difference between the two apparatus lies in the fact that in the one apparatus the jets of water or steam issue from the stirrer arms themselves, and in the other case the jets of water or steam are applied at a point above the stirrer arms.

These differences, both in respect to the crushing machinery and the heating and moistening machinery, are mechanical differences or differences in the construction of machines designed to accomplish the same work or produce the same result upon the seed—that is to say, the stack of five high rolls employed by the defendant, and the pair of horizontal rolls described in the patent, are both designed to crush the seed under pressure without grinding or triturating it, and the two steam jacketed reservoir apparatus are both designed to throw "jets of "water or steam into the mass of crushed seed, so as to "thoroughly permeate and mix the same." Consequently, considered in their relation to the process or manipulation of the seed, they are the same, whatever difference may exist between them as mere machines. The step, operation or function they both perform is identical.

The patent is for a process, and not for an apparatus or machinery. And, as in the case of *Tighlman* v. *Proctor*, 12 Otto, the process may be infringed without using the particular apparatus described or suggested by the patentee as suitable. Often, indeed, a process may be practiced by use of many different mechanical appliances or apparatuses. All that is required of a patentee of a process is to describe or suggest some mechanical means of carrying it out if, indeed, such means should not happen to be obvious to an ordinary mechanic skilled in the art.

The defendants follow the foregoing treatment of the

seed by subjecting the crushed, heated and moistened seed to the action of a hydraulic press for the expression of the oil. This succession of steps plainly constitutes an infringement of the claim in the patent, which reads as follows:

"The process of crushing oleaginous seeds and extract-
"ing the oil therefrom consisting in the following *succes-*
"*sive steps*, viz.: the crushing of the seeds under pressure,
"the moistening of the seeds by direct subjection to steam,
"and finally, the expression of the oil from the seed by
"suitable pressure, as and for the purpose set forth."

The second step of the process, as summarized in the claim, "the moistening of the seeds by direct subjection "to steam," will, of course, be understood by reference to the specification where this step is more fully described and explained.

The specification states: "They (the seeds, with their
"oil cells fully crushed and disintegrated) are then passed
"directly, without the use of muller stones, to the mixing
"machine to be stirred, moistened and heated by the ad-
"mission of *small jets of water or steam* to the mass, and
"then transferred to the presses." And again: "The
"crushed seeds are next placed in a steam jacketed reser-
"voir of the mixing machines, where they are stirred,
"moistened and heated by perforated revolving stirrer
"arms, which throw *jets of water or steam* into the mass
"so as to thoroughly permeate or mix the same."

From the specification, therefore, it appears clear that either jets of water or steam may be used, and are to be considered as the same thing, or as equivalents of each other, the object being simply to add moisture, and thoroughly permeate and mix it with the crushed seed, so that

although the claim uses the word "steam" only, still it obviously includes water, because, in the first place, steam is nothing more than water in a finely subdivided state, and secondly, because it appears affirmatively from the specification that jets of water or steam are considered as equivalents of each other, as indeed, they obviously are. And it is well settled by the authorities that a claim for a combination of several steps or elements is always to be construed as covering equivalents.

Seymour v. *Osborne*, 11 Wall., 516; 2 Whit., 292.

Gould v. *Rees*, 15 Wall., 187; 2 Whit., 442.

Goodyear v. *R. R.*, 2 Wall., Cir. Ct., 356; 1 Fish. Pat. Cas., 631.

The defendants, however, employ a jet of steam as well as of water, the former striking the latter at an angle, and forming a fine spray of steam and water combined, which strikes the crushed seed or meal, so that what they use in fact comes within the strict letter of the claim, and it is therefore unnecessary for us to invoke the doctrine of equivalents.

V.

THE DEFENSES.

1. The defendants may insist that they are not infringers on the ground of an implied license growing out of the fact that they purchased of Mr. Lawther or his agent the set of five high rolls, which they use in their mill. We are not disposed to deny the right of the defendants to use these rolls, because, although they were purchased of the foundryman McDonald, without the

knowledge or authority of Mr. Lawther, and in his absence, and sold contrary to the custom of the foundryman, still, doubtless, the acquiescence by Mr. Lawther in the sale and purchase amounted to a ratification.

But we do insist that the right acquired by Hamilton and Goodrich by the purchase of this machine extends no farther than the right to use the machine, and does not extend to any right to use the patented process to which this machine is only an incident. The following reasons for this view suggest themselves: first, there never was any express or implied consent given to the defendants to use the process; on the contrary, Mr. Lawther brought suit against them immediately; as soon as he found that they had thrown out their muller stones and ceased to grind the seed, and thus began infringing upon the process. Second, even if this stack of five high rolls had been sold to defendants by Mr. Lawther in person, instead of in the accidental way in which the transaction came about, there would be nothing in the nature of the machine that would make it necessary for the user to employ in its use the patented process. These five high rolls are quite generally used for a great many purposes. They are sometimes used in linseed oil factories in such manner as to constitute no infringement. For example, it appears in this very record that a set of these identical five high rolls were used up to within a month or two at Amsterdam, New York, in a linseed oil mill, in connection with muller stones. (See Lawther's first Dep.) Indeed, Mr. Lawther himself has sold sets of these identical five high rolls to linseed oil millers to be used in connection with muller stones. (*Ibid.*) It also appears from the record that sets of four or five high rolls were used as preliminary to the muller stones in various linseed oil mills prior

to the invention or discovery of Mr. Lawther's patented process. (See deposition of defendant's witness Evans.) Had the defendants made such a use of the five high rolls purchased by them, Mr. Lawther would have had no ground for charging them with infringement of this process patent. Third. Mr. Lawther has a special patent on these five high rolls, or rather on some minor features of them, taken out about a year after his process patent. (See Lawther's first Dep.) If Mr. Lawther were here suing upon this machine patent, the fact of the purchase of the machine from the complainant would be of some significance. But as this suit is based upon an entirely distinct and prior patent, to which the machine is not even a necessary incident, we conceive that the fact of the purchase is entirely immaterial.

In brief, the process is entirely independent of the five high rolls, and may be practiced with other crushing devices, such, for example, as that described in the process patent itself. And on the other hand, the five high rolls may be used, and are useful without this patented process. At the very time the defendants purchased these five high rolls of Lawther's they were using the muller stones in their oil-mill in connection with other rolls.

The defendants invoke the maxim that an owner has a right to the use of his property. But we submit that this is qualified by the maxim that he must so use it as not to interfere with the rights of others.

2. The only other defense, aside from the general denial of infringement, which has already been considered, is a denial of the validity of the patent sued upon for want of novelty.

The patented process, as summarized in the claim, con-

sists of three successive steps or elements: *first*, crushing the seeds under pressure; *second*, moistening the seeds by direct subjection to steam; and, *third*, the expression of the oil from the seed by suitable pressure. It is the combination of these three steps or elements in a single process that Mr. Lawther claims to be new and of his invention. He does not claim or pretend to have been the first to moisten seeds by steam; he makes no claim to be the first to crush the seeds under pressure; nor does he lay any claim to the idea of expressing the oil from the seed by suitable pressure. Each of these steps or elements may be and probably are in themselves separately old. Lawther's patent does not cover, or pretend to cover, any single one of these steps separately. But what he does claim is the combination of these three successive steps or elements.

It would not be an infringement of his patent to use any two of these steps composing his process without the third, or to use any less number than the whole, or even to use all three of the steps if they were not taken successively and in the order indicated, or if any *counteracting step* intervened, because it would not be the same process, and would break the succession of steps to which the claim is limited. And on the other hand, his patent for the combination of these three successive steps is just as valid if all the steps or elements composing it are in themselves separately old as it would be if they were all new.

"The patent is for an entire process made up of several "constituents. The patentee does not claim to have been "the inventor of the constituents. The exclusive use of "them singly is not secured to him. What is secured is "their use when arranged in the process."

Mowrey v. *Whitney*, 2 Whit., 436.

Ryan v. *Goodwin*, 3 Sumner, 514.
Lee v. *Blandy*, 2 Fish., 93.
Gould v. *Rees*, 2 Whit., 439.
Howe v. *Morton*, 1 Fish., 586.
Manny v. *Sizer*, 1 Fish., 17.

It is alleged in defendants' answer that the patent is totally void, because the act or process of feeding or conveying the oil seeds through a vertical supply tube and feeding roller, is old and has been used by various parties; and also because the so-called jacketed reservoir as a part of the process of crushing seeds and extracting oil therefrom has been long well known to various parties; and also because a seed-steaming apparatus is shown in the prior patent to Fisher; and also because, as appears by their amended answer, that "crushing oil seeds by "rollers set vertically one over another, substantially as "described and claimed by the complainant as a part of "his alleged invention, has been used many years before "said patent."

There is no allegation in the answer that anybody prior to Mr. Lawther's invention or discovery ever had knowledge of or used the patented invention or discovery, or that it was ever previously patented, or described in any prior patent or publication. The proof, does not, in fact, exceed the allegations in this respect, but exactly corresponds therewith.

We might, therefore, with entire safety, admit all of such allegations excepting the legal conclusion that the patent is thereby rendered "totally void."

The separate steps, the particular machinery employed, may all and each be old, as we have shown, and still the patent for the process employing several successive steps

in a certain way, accomplishing a valuable result, be a new process, and the patent therefor valid.

Mr. Evans, the witness called by defendants to prove the above allegations of the answer, or many of them, says:

"I believe the only difference between the manner that "has been in use for the last thirty years and this in his "(Lawther's) process, is the non-use of the muller "stones."

And there is no testimony in the record that goes any further than this. Although cracking or crushing rolls were used in many linseed oil mills prior to Lawther's invention, they were always used in conjunction with and as preliminary to the muller stones. There is no testimony in the record showing or tending to show that anything like Mr. Lawther's patented process, consisting of these three successive steps, crushing under pressure, moistening and heating, and expressing the oil, was ever known or used prior to Mr. Lawther's patent. The patent, therefore, which only pretends to claim these three successive steps combined in the order enumerated, is unquestionably good and valid. The appellees have used or infringed this process, and we submit that the decision of the court below should be reversed.

Respectfully submitted.

JOHN W. MUNDAY and
EDMUND ADCOCK,
Counsel for Appellants.

IN THE

Supreme Court of the United States.

OCTOBER TERM, A. D. 1886.

No. 310.

ALFRED B. LAWTHER,
Appellant,
vs.
CHARLES S. HAMILTON AND TIMOTHY W. GOODRICH,
Appellees.

Appeal from the Circuit Court of the United States for the Eastern District of Wisconsin.

BRIEF FOR APPELLEES.

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STATEMENT OF CASE.

The appellant filed his bill in the court below to enjoin the appellees from infringement of Letters Patent No. 163164, granted to him by the United States on September 28, 1875, for an "Improvement in Processes of treating oleaginous Seeds;" and appealed from a final decree dismissing the bill on the merits, after a final hearing upon the proofs.

The invention claimed in the patent is: "The process of crushing oleaginous seeds and extracting the oil therefrom, consisting of the following successive steps, viz: the crushing of the seeds under pressure, the moistening of the seeds by direct subjection to steam, and, finally, the expression of the oil from the seed by suitable pressure, as and for the purpose set forth."

The specifications described no particular mechanism

for applying the process, but alleged that the former method had been to crush the seeds between revolving rollers, and to complete that imperfect crushing by passing them under heavy stones, known as mullers, with the addition of water, and then to stir the meal in a heated reservoir, and, lastly, to press out the oil. It asserts that this process was imperfect by reason of over-grinding and under-grinding of parts of the seed under the mullers, thus preventing the complete extraction of the oil. The point upon which stress is laid in the specification and throughout the case is the disuse of the mullers and the more complete crushing of the seeds and of each individual oil-cell by means of rollers. It is stated as an essential part of the process that the seeds must be fed to the rollers under pressure in order to make them feed into rollers revolving under greater pressure. The patentee does not state whether it is necessary that the seed should be passed more than once between such rollers in order to accomplish their perfect crushing. After they are thoroughly crushed they are then placed in a reservoir where they are moistened by jets of water or steam accompanied by stirring to distribute the moisture uniformly, and the mass is heated and then transferred to the presses for the extraction of the oil.

The defendants during the time of the alleged infringement had used for crushing seed what is called a "stack" of five rollers, resting one upon the other, and so arranged with inclined scrapers adjusted to each roller that the seed passed in and out between each two rollers in succession from top to bottom. They then transferred the crushed seed to a circular box and as the stream or sheet of meal fell into the box, a fine spray of water was thrown against it. This spray was produced by throwing a jet of steam across a small stream of wa-

ter so that the steam and water together produced the spray. See pp. 54, 55, and defendants' Exhibit 3, following page 70.

The meal was stirred and when necessary dried to a sufficient degree after the moistening, in that same box, and passed from there to the moulding machine, which moulded it in proper quantities and shapes to be put into the mats of a hydraulic press.

The defense goes upon the grounds that the alleged invention was not new or patentable, and that there was no infringement.

It was not seriously denied by the complainant that each of the several parts of this process or method of working seed into oil was old. Some of the steps are very old and very familiar, not only in this particular branch of art, but in various others which have to do with the crushing or grinding of natural products and the extraction of fluids therefrom. Abundant evidence to this effect will be found on pages 17, 35, 41, 53 and 119, and the court will of course take cognizance of common knowledge on the subject, even without the proofs in the case.

The appellant's claim to be the inventor of a patentable process was largely rested in the court below, by his counsel, on the argument that he had made a new process by omitting one of the steps of the old process, namely, the additional grinding by the mullers. It was said to be analogous to the English case of Russell vs. Cowley, 1, Webster's Patent Cases, 467, where Whitehouse was held to have invented a new process by omitting the use of the mandril in welding gas-pipe. In this court the case is rested chiefly on the argument that each process consists of three steps, the only difference being that the old process, by the action of rollers first and mullers afterwards, *ground* the seed, while the

new process, by the use of rollers alone, simply *crushes* it. An essential similarity throughout the subsequent stages of each process is not only admitted, but argued.

Whether, therefore, the old process consisted of four steps or three, and whether the merit of the new one consists in the simple omission of one step of the old, or in the substitution of something else in place of the first step of the old, the main question for this court to pass upon is this: Is the process stated in the claim both new and patentable under the specifications and in the light of the facts?

Further statement of the facts will be reserved for the appropriate places in the course of the argument.

The opinion of the court below is reported under the same title in Vol. 21, Federal Reporter, at page 811.

ARGUMENT.

I. THE APPELLANT'S PROCESS IS NOT A NOVEL AND PATENTABLE INVENTION.

As we have stated, the appellant's counsel has at one time treated the old process as consisting of four steps, and at another as consisting of three, while he has at all times treated the new (by which we mean Mr. Lawther's) process as consisting of three steps only. But when we look to see what is really done with the seed, it is clear that there are in *each* process four steps, (1) crushing or breaking the seed—destroying its cellular structure; (2) moistening it with steam or water, accompanied with stirring or other such manipulation to distribute the moisture uniformly; (3) heating it, and if over-wet, drying it to the right degree of moisture; (4) expressing the oil.

The clearest explanation by a witness of practical experience was given by the appellee Hamilton, at pages 51–53, and we therefore quote it entire here. This witness had been in the linseed oil business since 1853—much longer than any other witness. He said:

"Q. In the extraction of oil from vegetable seeds state what, in your view, are the essential steps required for reducing the seed to oil or extracting the oil from the fibres of the seed.

A. The first is to destroy the cellular structure of the seed. An examination of the interior of oil-bearing seeds by a powerful microscope shows the structure to be cellular, and the oil to be distributed in very minute cells uniformly through the interior of the seed. The more thoroughly this cellular stracture is destroyed

the more easily the seed yields its oil and more completely. The next step in the process is the proper moistening of the crushed seed or meal. Water in some form is necessary for the extraction of the oil. It operates in two ways: First, by a uniform distribution and subsequent heating the texture of the cells is broken, and if any of the cells are unbroken in connection with the crushing process they will yield oil more readily if thoroughly softened by the water. The other necessity is the application of water and heat in order to make the oil thin and allow it to flow out freely, the water in a certain measure taking the place of the oil in the seed, thus liberating the oil. Then the next step is the heating of the meal for the purpose of driving off a certain portion of the moisture that has been communicated to the seed either by water or steam. If the meal be too moist it cannot be confined in any of the bags or mats that are in use in hydraulic pressure; it must be heated and stirred to a given degree of dryness which will enable it to 'set' under pressure. If this dryness be not obtained, the meal in its softened state will gush out in every direction.

Q. Like thin mush, I suppose?

A. Yes, sir; no bags or mats will confine it. The next and last step in extracting oil is the application of pressure to this meal after it has been sufficiently dried. There are many different kinds of machines used to produce these different results, but the general plan of crushing seed, moistening, heating to a certain degree of dryness for pressing, are each essentials in the process, which cannot be completed without each one of them—that is, cannot be perfectly completed. Now, to go back to the first step of crushing. I began business in 1853. The system of crushing seed at that time, almost universally, I believe, in this country, was to

crush it between two horizontal rollers set side by side, one fixed and the other pressed against it by means of screws or wedges, the seed being fed to these rollers by means of a small fluted roller, which, taking up along its whole length an equal amount of seed in every portion of it, in its revolutions dropped that seed evenly so as to be taken by the rollers and crushed. Gradual improvements in machinery for making oil gave rise to the increase in length and diameter, and consequently of the surface of these rollers. The smaller the rollers the less amount of capable work could they do. For many years I knew of no other system being used for crushing the seed than these two rollers. Afterwards a study of the process of extracting oil led different persons to believe that a more thorough crushing of the seed than could be given by two rollers at a single crushing could be effected by increasing the size and length of the rollers—diameter and length. In this way the rollers have been increased in size more or less gradually and in length, until to-day the common mode of crushing seed is to pass the seed between a number of rollers lying one on the top of the other, forming a stack or wall of rollers, the seed passing through each two of the rollers, being crushed within once as many times as there are rollers. If there are four rollers it gets three crushings; if five, four; and so on. The usual mode of moistening seed until within comparatively a few years was, after crushing, to transfer it to a bed-plate on which ran a couple of muller-stones running around a vertical shaft on their edges. While under the stones a certain amount of water is applied to the meal. That meal is stirred by means of scrapers as the stones revolve, and the effect of the stone passing over the meal will be to distribute the water evenly and uniformly through the mass of

meal. I have never used the mullers with the object of grinding. I have never used them except where they would, even after they were discharged to the extent the scrapers would empty the meal, run upon a bed of meal from one to one and a half inches deep that would be permanent; and meal placed on top of that would not be subject to any grinding process; there would be, being under the weight of the stone and under the peculiar motion given to them by running around the vertical shaft, a tearing process, which would be sufficient to break into meal any seed that had simply been crushed and still adhered as flattened seed. For a great many years no other or no better process of mixing the water thoroughly and uniformly through the meal was known in this country to exist. Subsequently various devices have been put in use for moistening meal equally throughout, either by means of water or steam. After this moistening the meal is transferred to a steam-jacketed heater. These steam-jacketed heaters I have used since 1864; the first one I ever used being made of boiler iron, the top, or rather the sides, and bottom separate, and fed with steam separately.

Q. That is, you mean the spaces for the steam are separated at the sides and bottom?

A. Yes, sir; they had no connection with each other, except as round about through the steam pipe. This steam-jacketed heater had been in use for some years before I put it in use. I saw it in Chicago, I think, as early as 1862—possibly earlier.

After the heating and drying of the meal in this heater it was transferred to hydraulic presses, the general principles of the working of which are the same in all cases. Under this pressure the meal having been reduced to its proper condition to yield oil freely, it is removed, and the refuse, after the pressure is removed, is known as

oil-cake. I have always used water for the moistening of the meal, and I still use it. The presses which I use are presses which were made in 1860—four presses—two made in 1860 and two in 1863. They have been changed in no essential particular except the boxes, which make a different form of cake."

The substance of the whole process was expressed by the appellant on cross-examination in these words (p. 119):

"*Q. Then those four steps have always been used, so far as you know, in all mills making oil mechanically — I mean, as distinguished from the chemical process?*

A. Crushing, heating, moistening and pressing have always been used, so far as I know."

The operation is thus seen to comprise four steps as we have stated. Let us compare the two processes step by step.

In the old process, the crushing was done by rollers —generally by a pair of "pinch-rollers," set side by side and held firmly by sets-crews. If the seed was passed through but once, the crushing was imperfect. (See pp. 16, 27, 37, 43, 57.) By a natural law of progressive improvement in the arts, as explained by the defendant Hamilton, the mechanism for this step had been growing better for some time before the date of Lawther's patent. Many years ago, the same witness saw a crude apparatus for crushing by stamps in two mills. But the single set of pinch-rollers was long the usual device. In 1866, and later, the witness Evans saw "stacks" of rollers, arranged one over another, at Philadelphia and elsewhere, and in 1868 he began to use a set of four rollers (p. 35). As early as 1870, a firm at Dayton, Ohio, used two sets of the horizontal rollers, one set being placed over the other and independent of

it, and the crushed seed being dropped from one set to the other. (P. 36–37.)

The view most favorable to the appellant about this step is that the old rollers and the mullers together accomplish the crushing or disintegrating of the seed. For the purpose of founding a distinction on which this patent can be upheld, the action of the mullers is persistently represented as a *grinding*. It is then argued that the essential difference and improvement is that the new process *crushes*, while the old *grinds*. The truth is, however, that the mullers have no such effect. They do not work like mill-stones—two contiguous surfaces revolving parallel to each other in opposite directions, or one revolving parallel to the other which is stationary. They travel in a circle on a horizontal bed. Their operation is nearly identical with that of the rollers. Their force is applied as a crushing weight on the meal under them. In practice there is always quite a bed of meal under them, when at work, and it is impossible to grind to any appreciable extent (pp. 52, 111). Evans says (p. 38), the function of the mullers is: "Mixing dampness, either water or steam, with the meal preparatory to the heating process, and thoroughly tearing apart the particles of seed sticking together after it passes through the rollers — a kind of kneading operation — mixing." Abbott, a witness for defendant (pp. 42, 44), used a stack of rollers, mullers, steam-jacket reservoir, and a press; and he wet the meal by water applied on the muller-bed under the stones. Hamilton makes a fair and clear explanation. He says (p. 56): "There is a twist to the line of contact of the muller with the bed of meal in passing around, which would make a tearing motion, and seeds which were unbroken, which were crushed but unbroken in the rollers, would be torn apart under the mullers, but the particles themselves would be rendered no

smaller or finer. *We have never used the mullers for any other purpose than to mix the water evenly and uniformly through the meal, and when we adopted the spray we threw aside the mullers as being unnecessary.*" And see Kimpler's testimony at p. 71.

Admitting temporarily for the sake of argument that in the old process the first step, by whatever name called, was accomplished by the rollers and mullers jointly, and in the new process by the rollers alone, we have simply a more perfect result, produced in essentially the same way by the mechanical application of a crushing force.

The second step consists in a uniform moistening of the crushed seed or meal. In the old process it was done under the mullers, and in the earlier stages of the art quite primitively—water being thrown in by hand, (see p. 11). Later, a pipe or other mechanism was introduced. Scrapers traveled over the bed, and they with the mullers thoroughly mixed the meal. See pp. 15, 25, 29, 39, 45, 52, 71. There is no dispute, as these citations show, abont this function of the mullers, whatever else they are said to do. On the other hand, the new process applies water or steam in a steam-jacketed reservoir. See the specifications, p. 5. Some of the witnesses state as an essential distinction between the processes, that the new one uses *steam* and not *water*, and the claim is only for the use of steam (p. 5). The answer to that is, that in the view of the patent law, there is no essential and patentable difference; and (secondly) if there is, we do not infringe, because we use *water only*. (See pp. 54, 55.) This step, then, in each process is simply the application of water in one or the other state to the meal. Any difference between the processes in this step is not in its essential nature, but

only in the perfection of the mechanism and in the superiority of its product.

The third step is the heating, accompanied, when over-moistened, by drying to the proper point. In the old process this was done in a separate receptacle from that for the moistening. In the new process both the second and third steps are performed successively in the steam-jacketed reservoir. The true theory of the effect of water is stated by Hamilton on page 51. If the meal becomes too wet it must be dried to the point at which it will "set" in the mats and not ooze out. That is a matter of practical skill (pp. 38, 56). The only difference, then, in this step is that in the old process the second step—moistening—was done in one place, and this third step, with the drying (if needed) in another; while in the new process, both are performed simultaneously in one place, and the drying (if needed) is done there, too. The seed varies in its natural moisture, and skilled manipulation is necessary for profitable results. But in the second and third steps in each process the same treatment is given, the same skill and judgment is needed; and if any difference in the product occurs, it is due to a more perfect mechanism, and not to any novel or patentable variation in the essence of the process.

The fourth step in each process is the expression of oil by some kind of press. Of course hydraulic presses, as the most powerful, have long been used.

The whole process, whether old or new, as thus analyzed, consists of the four steps stated, which are essentially identical in eaeh. The differences are purely mechanical and incidental. In the old process the first step (on the patentee's theory) is performed by the rollers and mullers together, and the second step by the mullers also. In the new, the first step is performed by the rollers alone, and the second and third are done sim-

ultaneously by the steam-jacketed reservoir, or such receptacle for wetting and heating. In all else the two are precisely parallel.

If, however, it is preferable to view it as consisting of only three steps, the same result is reached. Those three steps are stated by the appellant in his claim as (1) crushing, (2) moistening, (3) pressing. He ignores the heating as part of the alleged invention, though he states it in the specification (p. 5). Probably he regards it as only an incident in the treatment of seed. It is, however, as important as any other step, for the purpose of making the oil flow freely from the meal when pressed. But thus stated, we see that in the old process the first step was done by rollers and mullers combined (on the patentee's theory of operation of mullers), and the second by the mullers; while in the new, the first step is done by the rollers alone, and the second by the heating reservoir and its steaming apparatus. The "improvement" for which this patent was granted is thus seen to consist of the omission of one piece of mechanism of the two that used to perform the first step, and the substitution of a new piece of mechanism for the one that used to perform the second step. This is no new process.

Still arguing on the patentee's hypothesis that the mullers *grind* instead of *crush* the seed, the whole controversy when reduced to its simplest elements is seen to turn upon this: Is or is not the substitution of crushing without grinding in the treatment of such seed a patentable invention? Crushing is the effect of a pressing force applied perpendicularly to the plane or axis of the article to be crushed; grinding is the effect of such a force applied obliquely or parallel to it or of two forces moving in parallel planes in opposite directions. Prehistoric man crushed grain for food into a coarse meal by

rude implements; the old-fashioned miller with his mill-stones ground it. Each was the application of force in one of its simplest forms and apart from the mechanism employed could hardly in any stage of society be a patentable invention. The applications of either kind of force in the arts are innumerable and ancient. Especially is the use of either familiar for the purpose of disintegrating, comminuting or otherwise reducing to a fine state various natural and artificial products, preparatory to their subsequent treatment for extracting essences or working them into compounds. In this case, it may be safely admitted for argument's sake, a larger yield of oil is obtained. But the cellular structure is alike destroyed in each case, the subsequent manipulation is virtually the same and the product is the same. There does not seem, then, to be any true invention in saying: "As the first step of your process of turning seed into oil and cake, crush your seed but do not grind it; after that do exactly as before." This is an improvement merely in the mechanical means of performing certain parts of the old process. It is a difference merely in the function of the mechanism.

The theory, moreover, that Mr. Lawther is the discoverer of a natural law by which the seed when merely crushed will yield its oil better than when ground, is an ingenious surmise of the counsel of which there is no sufficient evidence. There is no natural law of force by which the flattened discs or hulls of the seed will arrange themselves in a plane perpendicularly to the line of the force applied in the press, so as to produce a laminated structure. Such hulls will naturally arrange themselves in every plane indifferently as they happen to fall into the moulding machine. A large part of the meal, too, being the inside of the seed, comes from the rollers as well as from the mullers in a finely reduced state,

and is just as likely to prevent the oil from flowing out freely in the press as meal which has been treated with mullers. In fact, if instead of theorizing we look steadily at the facts, we see that the increased amount of oil under Lawther's method is due rather to all of the mechanical improvements which he suggests, than to his alleged invention of crushing alone. His own testimony shows this. In his rebuttal he testified at length as to the circumstances of his experimenting and final success. We reduce his testimony at pages 115 and 116 to narration for brevity:

"My invention first took tangible and practical shape in my mind as a whole process between May 31 and June 2, 1874. It was the perfecting of all the improvements, the harmonious working of all the changes that we had made in the matter that produced the change in results at that time. Most of the changes had taught us something, and when we learned it all, we knew it. I don't know that I could locate any particular thing of any importance or magnitude. The change was caused by our men's increased practical skill and experience in working seed in that new way, added to the apparatus. We could not have succeeded without both that knowledge and the proper appliances. The whole thing was a series of infinitely small steps. I have no record of any experiment or change in the apparatus from May 30 till after June 2. One of our greatest difficulties was the uniform moistening of the seed. We changed the moistening apparatus in a great many different ways. Some of such changes may have been made at that time. I don't know that any change was made in the rolls at that time, or in the heater, and probably not in the presses. At those dates and for some time previously we crushed the seed under rolls as the first step; and then moistened it, and then heated it and then

extracted the oil by pressure. That is the process to-day."

The testimony of Hamilton also shows that the difference if any, is in the practical skill employed. The witness Evans at page 40 says in effect the same thing, and says that he has analyzed many samples of cake made by the two processes and found no better result by Lawther's. The alleged tendency of the seed worked by mullers to become pasty and absorb oil is not due to any grinding action, but merely to differences in the manipulation — the practical skill of the workman. Evans says (p. 38): "The long working of the seed under the mullers produces a pasty condition unless there is enough water put in; and this can be rectified by putting in water or steam to a certain extent. The application of more or less water or steam to the mass is very much a matter of practical skill. Some seed is damper than other, and the amount of dampness you use in working that seed is not as much as is required to work seed that is very dry." Hamilton also says (p. 56): "The mullers produce a pasty condition if used long enough on meal unsupplied with water. That can be rectified by the addition of water to bring it back to its original dry or mealy condition. There is no rule or principle about the application of moisture to this meal. It is nothing more than a matter of practice and skill that may be applied by any manufacturer. We want enough to make it work thoroughly, and little enough so the time consumed in drying off and heating will not interfere with the action or running of the other machinery. The quantity of the moisture varies with the seed and other details of the business. We often use seed that requires no moistening. Other that is thoroughly dry requires much moisture." Mr. Lawther's detailed statement throughout his testimony in rebuttal

regarding his experience, shows that his success did not depend on the change from rollers and mullers to rollers alone, but on his numerous minute changes, none of which were changes in steps of the process, but in the mechanical perfection of the devices used.

The argument has proceeded so far on the admission for argument that the mullers had a grinding action. But as a matter of fact they had not; and their chief use was to mix the meal and temper it uniformly with water. We have already cited the passages which establish this fact; and here only recur to them to show clearly our position. Though no specific finding of fact is contained in the record, it is a fair inference that the court below so found.

The principles of law which apply to this state of facts are so well settled that we need but little space to state them or cite authorities. We assert that this patent is void, because it is for a process in prior use; because if new in any sense, it is simply a variation in applying an old method or process to a new but analogous use not rising to invention; and because it is an improvement in mechanical details and in the perfection of the result, only springing from mechanical skill.

This process is not a "process" within the sense of the patent law, as construed by the cases

Corning v. Burden, 15 How. 252.
MacKay v. Jackman, 12 Fed. R. 615.
Goss v. Cameron, 14 Id. 576.
Walker on Patents, §§ 3–14.

The case of

Eachus v. Broomall, 115 U. S. 429,

exhibits a somewhat similar attempt to claim as a "process" a trifling improvement in the method of treating the material of an old product.

Western Electric Co. v. Ansonia Co., 114 U. S. 447.
Hollister v. Benedict, &c., Co., 114 Id. 59.
King. v. Gallun, 109 Id. 99.
Pearce v. Mulford, 102 Id. 112.
Vinton v. Hamilton, 104 Id. 485

are applications of the principles of law we have referred to.

We now recur to the other position taken by the appellant's counsel that the patent is sustainable on the principle of the Whitehouse patent for welding gaspipe without a mandrel. That case is not analogous. There, the pipes had been welded by putting a mandrel in them. The inventor disused the mandrel, and thus made an entirely new process throughout. To make that case like this, it would be necessary that pipes had been welded partially without mandrels, and the process completed with them, and that the inventor had said: "Weld them without mandrels from beginning to end of the operation." But this extension of the first step would not have been a patentable invention, for it would have amounted only to doing perfectly what before had been done imperfectly by the same device.

II. THE SPECIFICATIONS DO NOT TRULY AND DEFINITELY DESCRIBE THE MEANS USED TO CARRY OUT THE PROCESS, OR THE ESSENCE OF THE PROCESS, AND THE CLAIM IS TOO VAGUE AND EXTENDED.

As pointed out by the court below, the patentee has not described any of the mechanical devices used in his process. Especially has he not stated with necessary precision the extent to which the crushing of seeds

should be carried. This seems a fatal defect, because the crushing is made the vital point of his process. For aught that appears on the face of the patent, the old style of two pinch-rollers, and a single crushing, would suffice for his process. Yet all the appellant's proofs tend to show that that was imperfect in the old process. And all his witnesses seem to identify in their minds the stack of rollers, generally "five high," as an essential part of his method, and one even goes so far as to say (pp. 25, 27) that repeated crushings with the old rollers would not do as well as the same number with new rollers.

The patentee, therefore, has not given that true and full description of the essentials of his invention which he must give as the price of his monopoly.

In another respect he has offended by the insertion of something as necessary which is needless and indeed inoperative. That is the feeding "under pressure" to the rollers. He says: "My process * * * *consists mainly* in conveying the oil seeds through a vertical supply tube and feeding roller at such degree of pressure to powerful revolving rollers that each seed is individually acted upon and the oil-cells fully crushed and disintegrated."

Now, in the first place, this sentence contains his main statement of what his invention is; and if correct, it amounts to nothing but feeding minute articles by a very common mechanism to rollers, which draw them in and crush them — something which is no more a patent process than rolling barrels down an inclined plane.

In the next place, the patentee here and in the two following paragraphs of the specifications clearly states as necessary, the feeding of the seeds under pressure, because they otherwise would not feed regularly to roll-

lers at high speed and pressure. The idea seems to be that unless they were fed under pressure, in other words were pressed or pushed by some force in the rear they would not readily be drawn between the rollers. But this is totally false. Any one with a meagre knowledge of mechanics knows that light and small substances are readily drawn without pressure between rollers at high speed closely pressed together. And the witnesses Evans (pp. 37, 38), Abbott (p. 43), and Hamilton (p. 58) show that the idea is entirely illusory; the "pressure" on the seeds ceases the moment they are released from the fluted feed-roller and dropped on the inclined plane, down which they slide to the rollers. It is another instance of the vague theories that mark this case. The patentee, then, has stated in his patent as necessary to operate his process something which is impossible in in mechanics, under the conditions stated, which is false in fact, which neither he nor any one puts in practice in their mills, and which the appellees do not use. He is therefore left to the dilemma: If this is essential to Lawther's process, Hamilton and Goodrich have not infringed that process; if it is not essential, Lawther has misstated his invention very materially.

In the third place, as suggested by the learned Judge who wrote the opinion below, the patent is void because of its vague, most indefinite and all-embracing claim. The claim must be construed by the light of the specifications. We have just seen what the specifications state as the main conception of the invention of. But the claim is expanded far beyond that. It embraces the same process substantially, consisting of four successive steps in a certain arrangement, which has been in use in every mill in this country for many years.

The counsel's argument, that because his client's improvement has made much saving he ought to be pro-

tected by the patent law calls for one remark — it is a palpable *petitio principii.* The books are full of cases where useful improvements have been held not patentable, because they embodied mechanical skill, not inventive talent. The patent law was made to protect only those useful improvements which are patentable.

III. THERE WAS NO INFRINGEMENT.

We do not dispute that if the patent is good, we have used the process claimed—provided that the claim covers the use of water as well as of steam. But the appellant should be held to be equitably estopped by his acquiescence in the purchase of a set of rollers by the appellees for the purpose of working seed without mullers. The appellant has a later patent upon the rollers, or the special kind of rollers and frame that the appellees bought (p. 30.) They were bought of the witness McDonald, a manufacturer, who made Lawther's patented machinery (pp. 18–22.) They proved defective in material or workmanship, and considerable correspondence (pp. 60–69) ensued, and finally McDonald and Lawther went to the appellees' mill at Milwaukee in September, 1881, (pp. 20, 31, 32) to examine the rollers. There, and later at McDonald's office in Chicago, Lawther learned from the conversation between McDonald and the appellees, that McDonald was selling them such a set of his patented rollers; and though McDonald was not his agent for sale of the patented rollers, Lawther acquiesced in the sale, as his counsel concedes. We admit that acquiescence in a sale of patented machinery that might be used in either the old process or the new, would not *of itself* import acquiescence of the patentee of both machinery and process

in the use of the process. But the facts go farther. McDonald was at the mill several times (p. 19) in the latter part of 1881, observed the appellee's process and had it explained. For working that process this suit was brought. The mullers were in the mill, but disused and out of gear (p. 19). The appellees then used the contrivance for spraying water above described. They had used it over a year—perhaps a year and a half—when Hamilton testified on August 11, 1882 (p. 65). They had also used the steam-jacketed reservoir for heating since 1864 (p. 53), and after disuse of the mullers, applied water by the spraying apparatus at the heater (p. 19). Consequently, when the appellant was at the mill, in September, 1881, the entire apparatus for working his process—rollers without mullers, a heating reservoir with spraying device, and presses—was there, in working order (except as to the defective rollers), *and was the only working apparatus there for carrying on the work of a large linseed-oil mill.* Yet Mr. Lawther stood by, silent. He was the patentee of both the crushing apparatus and the process. His practiced eye was (or should have been) open to the machinery and process of that mill. But his mouth was closed. He knew that the appellees were buying of McDonald a set of his patented rollers, which were ordinarily used for his patented process. The presumption was that this set were for such use. He should have protested, have warned the appellees that they were in danger of trespassing. At least, he should have inquired of their intent, that they might be under no misapprehension in buying and using the rollers. But he did none of these things. In short, he is estopped.

CHARLES E. SHEPARD,
Counsel for Appellees.

OCT 10 1887

IN THE

Supreme Court of the United States.

OCTOBER TERM, A. D. 1887.

NO. 39.

ALFRED B. LAWTHER, *Appellant,*
vs.
CHARLES S. HAMILTON AND TIMOTHY W. GOODRICH, *Appellees.*

Appeal from the Circuit Court of United States for the Eastern District of Wisconsin.

BRIEF FOR APPELLANTS IN REPLY.

JOHN W. MUNDAY,
EDMUND ADCOCK,
COUNSEL FOR APPELLANT.

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MAY IT PLEASE THE COURT:

In appellee's brief it is practically conceded that Lawther was the first to discard the muller-stones; that in the old art the seed were first crushed between rollers, and then subjected to the action of muller-stones, then heated and moistened, and the oil expressed; and that in the new or Lawther process the seed are first crushed between rollers, and then heated, moistened, and the oil expressed, without subjecting the same to the action of muller-stones, in any part of the process.

If it be admitted, or taken as established from the record, that the muller stones in the old process had an in-

jurious or grinding effect upon the seed, and that by their omission in the new process, the seed not being ground, a flaky stratified cake was produced, resulting in a largely increased yield of oil, we think it must be conceded that the new process is a patentable and valuable improvement. And upon the proposition of its patentability when thus considered we do not care to offer anything in addition to our former brief.

Notwithstanding the fact, however, that the court below, as will appear from its opinion, decided the case upon this state of facts, which it found from the record, appellees do not rest their defense upon this proposition. But they proceed to deny the facts that the muller stones grind, and that the new process results in any increased yield of oil.

By way of reply we desire to call the court's attention to the record.

That Judges Drummond and Dyer did hold the view of the facts as above stated will appear from the following extract from Judge Dyer's opinion:

"By this process it is claimed that greater certainty is attained in suitably crushing the entire mass of seed, and also that from a given quantity of seed a larger flow of oil is produced than from an equal quantity subjected to the action of muller stones, *and it must be admitted that the proofs tend to sustain this claim.*" (Addendum, 3.)

And also:

"It may be true that by the omission of the muller stones certain injurious effects upon the seed produced by the alleged grinding or tearing action of the stones are avoided; but this would seem to be due rather to a change in mechanical appliances than to the discovery of a new and original process in the sense in which that term must be here considered and understood. The crushing of ole-

aginous seed so that ultimately it may be in condition for the application of hydraulic pressure was always a step, and necessarily the first step, in the process of extracting the oil therefrom. As we have seen, that step was formerly accomplished by means of rollers and muller stones. The complainant ascertained by practice that in crushing the seed the tearing, pulverizing action of the muller stones was injurious, and so he dispensed with that mechanical operation in the crushing step of the process, and employed the rollers alone. He thereby simply omitted one of the instrumentalities previously used in the first stage of treatment of the seed. *This was undoubtedly a useful improvement*, but it was not the invention or discovery of a new process." (Addendum, 4.)

The uniform testimony of appellant's witnesses, all practical linseed millers, is that muller stones did grind the seed. McDougal says:

"Q. When you say you obtain by this process one and six-tenths pounds more of oil to the bushel of flaxseed, what method do you compare with the one that you use?

A. With the method by which they ground up the seed by muller stones, and used water to dampen with.

Q. Did the mullers do any grinding?

A. They ground it up finer." (Rec., 14.)

Woodman says:

"After that the crushed seed was placed under the muller stones similar to the model No. 3; water was introduced into the meal, and it was ground up. The water was thoroughly mixed into the mass. After grinding it up a sufficient length of time it was taken out and put into heaters, a heater for each press." (Rec., 24.)

And also:

"Q. Does not the manufacture of oil from seed depend primarily for its results upon the principle of thoroughly crushing the seed?

A. Well, I should answer that, in a measure, it does, taken in combination with other methods of working the seed. *No matter how well the seed was crushed, if it was*

placed under the muller stones it would have very little effect, as the muller stones would destroy the hull of the seed and leave it in a bad condition; but by being warmed in the heater without the use of muller stones, and the introduction of live steam the gradual reduction of the seed is desirable, so considered." (Rec., 26.)

And also:

"Q. Was the seed as thoroughly crushed by the old process as by the new?

"A. Not for the purpose of extracting the oil from it. In some respects it was more thoroughly crushed; the hull of the seed was more broken up; I mean broken up by the rolls. What escaped the rolls the mullers finished up." (Rec., 27.)

Hardy says:

"The rolls that I have always saw used in a great many mills were short, and with many of the crushers they merely wanted to break the seed with the rolls and do the balance of the work with the mullers." (Rec., 16.)

Mr. Lawther says:

"Q. Have you examined and are you familiar with the operation of oil-making mills in various parts of the country, and to what extent?

"A. I am famliar with the operations, and have had something to do with thirty mills at least in this country.

"Q. Have you examined the mills of other countries?

"A. I have; in Great Britain only.

"Q. Prior to your invention of the patented process under consideration, what was the process in general and most successful use among mills for the treatment of oleaginous seed for the production of oil?

"A. Well, the process in use, so far as I ever saw it, and I think was the one in general use, was as follows: Crushing the seed between rollers, grinding it in what was called muller-stones with the addition of a quantity of water, heating, and then pressing by hydraulic presses.

"Q. Explain briefly your patented process.

"A. It consisted in crushing the seeds by rollers, heating and moistening by direct and indirect action of steam, and then pressing.

"Q. What objects did you seek to obtain by this process?

"A. Uniformity in the crushing and moistening the seed. We wanted primarily, of course, to get more oil, the oil being the more valuable part of the product, and to do that it was necessary to crush our seed to such a condition as would allow the presses to express it. The grinding operation of the muller-stones was either too much or too little, or both combined; the soft or fine part of the meal protected the coarser parts and prevented the stones from grinding it unless the operation was continued so long as to reduce the fine part to a paste. The objection to its being in this pasty condition was that the oil couldn't get out of the cake after the press had condensed the cake. Now, if there were any imperfectly crushed or unground portions, the finer portions protected them in the press and they did not yield their oil. The water was put into this meal in a mass, more or less; the part of the meal that it would come in contact with would be too wet; subsequent mixing and heating did not distribute it uniformly. A portion remained too wet and a portion too dry, but intimately mixed together. It seems to be necessary to have a certain amount of moisture in the seeds. Too much interferes with the yield of oil and too little interferes with the yield of the oil. If a portion of the meal was too wet and a portion too dry, the average moisture might be right, but the result would be imperfect. We got over the difficulty of this moistening operation by adding water to the crushed seeds in such a gradual manner that we could not over-wet any portion; a repetition of the operation would add the requisite quantity. I used steam because it was the finest subdivision of water that I could get. This operation of the stones—I mean the old process of muller-stones—is done in a mass. The stones, of course, did not discriminate between that portion that was ground enough and that portion that was not ground enough, so we had to go to an arrangement by which we could crush each seed individually. That we accomplished by feeding a thin sheet

of seed to the rolls. This method of crushing and moistening resulted in a flaky cake—stratified cake—and an increased yield of oil.

"Q. What is the extent of that increased yield of oil, if you know?

"A. It has been approximated at a quarter of a gallon of oil to the bushel; equals four to five per cent. less oil that is left in the cakes. That means an increase in the actual yield of oil of about twelve and a half per cent." (Rec., 29, 30.)

It is doubtless true that the amount of grinding, trituration or tearing of the seed done by the muller-stones would depend upon the length of time they were run upon the seed, the weight of the stones, the condition of the seed, and perhaps the amount of seed upon the bed. All of this goes without saying. Different men may have produced with the mullers slightly different results in degree, but all produced to some degree the same result in kind. It stands to reason that wherever the muller-stones were used upon the seed, with whatever purpose or intention, some reduction of the seed thereby must have taken place, as the witnesses above testify.

One of the necessary consequences of the practice of Mr. Lawther's process is the production of a stratified or flaky cake after the oil has been squeezed out. This is due to the fact that the hulls or shells of the seed are not broken or comminuted, or ground up fine, or triturated, or torn apart by the action of any twisting, grinding or tearing instrumentality such as muller-stones. In the Lawther process the seed are simply flattened by a crushing pressure. The flattened shells or hulls go into the cake and the cake comes out of the press in a laminated or flaky condition.

Mr. Lawther says:

"This method of crushing and moistening resulted in a flaky cake—stratified cake—and in an increased yield of oil." (Rec., 30.)

McDougal says:

"Q. How does the manner of crushing the seed by the Lawther process tend to save anything—by the thoroughness with which it is done, or by anything peculiar in the process?

"A. Well, it crushes it, flattens the seed out, it opens the pores so that when it is put into the press it allows the oil to run out better, we think, than when run through muller-stones, which glues it up.

"Q. Isn't it simply the difference of thoroughly crushing that makes the difference?

"A. No; I think it is the manner of crushing that makes the difference." (Rec., 14, 15.)

Woodman says:

"Q. Please describe the condition of the cake in the two processes after the pressure has been applied.

"A. In the Lawther process the cake is what you might call flaky. The little particles of the hull not being broken up, they lay in strata in the cake; they all lay down one way. There is a grain to the cake—regular grain. This is not the case with the cake made by the Collahan machinery. The cake of the Collahan machinery seems to lack the flaky character. By the Collahan machinery I mean the old muller-stone process." (Rec., 25.)

The learned counsel for appellees finds it necessary to dispute the testimony of these witnesses without adducing any evidence whatever to support his position. But the testimony of the witnesses is better than any theorizing of counsel. Moreover the statement by the learned counsel that "There is no natural law of force by which the flattened "disks or hulls of the seed will arrange themselves in a "plane perpendicularly to the line of the force applied in "the press so as to produce a laminated structure," is

contrary to the accepted experience of mankind about things in general, as well as the testimony of the witnesses concerning the result upon the flaxseed in Lawther's process. It is this flaky, stratified cake which distinguishes Mr. Lawther's process from the old process. And if the old process did not, as counsel now contend, differ materially from Lawther's process, why did he not bring some testimony to show the character of the cake produced by the old process. The Lawther patent expressly describes the kind of cake resulting from the new process, that it is "of open grained, flaky nature, capable of being "split in regular pieces, at right angles to the direction of "pressure." (Rec., 33.) The witnesses testify as above as to this peculiarity of the cake produced by the Lawther process as that distinguishing it from the cake produced by the old processes. The oil produced by the one process is of course the same in appearance as that produced by the other. The acts done upon the seed in both processes are transitory and pass away as soon as done. Witnesses may testify confusedly as to the nature of these acts without fear of contradiction. But the oil cake made and sent out from the factory day by day bears upon it the "ear-marks" in every instance of the treatment to which the seed has been subjected. And if the appellees had been able to produce a single instance of the older process having resulted in the production of a flaky oil cake it would have been worth all of their vague testimony to the effect that they did not use the mullers to grind the seed, or with the intent to grind the seed. But throughout the whole record an absolute and conspicuous silence is observed among appellee's witnesses concerning the character of the cake produced by the old process where the muller-stones were used. And

now appellee's counsel feels obliged, in support of his case, to deny the existence of a self-evident natural law of force, viz: that thin, flat bodies under pressure will prefer to lie down flat than to stand up on edge.

The testimony is equally clear that the new or Lawther process results in a largely increased yield of oil.

The patent states that the new process "produces a "greater yield of oil." (Rec., 33.)

McDougal says:

"Q. What results do you attain by the use of this process as compared with the older methods that you know of?

"A. We can make a cake that has four per cent. less of oil in it than the old way?

"Q. Do you mean to say that you obtain a yield of more oil by this process?

"A. That means about one pound and six-tenths of a pound more oil out of a bushel of flaxseed.

"Q. In a mill of the capacity of yours, how much oil saved does that mean a day?

"A. That means 320 gallons a day saved.

"Q. At the present price of oil, what is that amount of oil worth?

"A. About $160." (Rec., 12, 13.)

"Q. When you say you obtain by this process one and six-tenths pounds more of oil to the bushel of flaxseed, what method do you compare with the one that you use?

"A. With the method by which they ground up the seed by muller-stones and used water to dampen with." (Rec., 14.)

Hardy says:

"Q. What difference, if any, is there in the yield of oil between this old process and the process you are now using, which you call the Lawther process?

"A. With us it has been from three to five per cent. better yield of oil with the Lawther process than with the other.

"Q. About how much oil is that per bushel, Mr. Hardy, on the average?

"A. It would be about a pound to the bushel of seed." (Rec., 15.)

Woodman says:

"Q. Is there any difference in the amount of oil extracted, between the old process and the Lawther process?

"A. I have found a difference of about two pounds to the bushel of seed more in Lawther than in the old style of machinery used by me.

"Q. That is a little over a quarter of a gallon of oil to the bushel, is it not?

"A. Yes, a fraction over, seven pounds of oil being a gallon.

"Q. What has been your practice, Mr. Woodman, with regard to the making of tests in the running of your mill to determine the yield of oil; how often have you been accustomed to test that matter?

"A. When I was running the Collahan machinery I made tests myself about every day; that is, during the last two years that I run the Collahan machinery. Since I have been using the Lawther machinery I have made tests six times during the twenty-four hours' work; that is, a cake was taken out every four hours and tests made upon those cakes.

"Q. Your statements of the comparative yield of the Lawther process and the old style process used by you is based upon these tests, is it.

"A. Yes." (Rec., 25.)

Lawther says:

"This method of crushing and moistening resulted in a flaky cake—stratified cake—and an increased yield of oil.

"Q. What is the extent of that increased yield of oil, if you know?

"A. It has been approximated at a quarter of a gallon of oil to the bushel; equals four to five per cent. less oil that is left in the cakes. That means an increase in the actual yield of oil of about twelve and a half per cent.

"Q. Now, Mr. Lawther, state generally and briefly, if you are able, what number of mills have adopted your

process under your authority, and what is the aggregate saving per annum by use of the same?

"A. There are thirty-one mills now erected; capacity of about four and one-half million of bushels per year. That would be a saving of a million gallons of oil; at the present price of oil that would be one-half million dollars per annum that is saved." (Rec., 31.)

The appellee Hamilton himself, when confronted with the question of comparative benefits of the old and new process, seeks to evade making the comparison. And though directly asked by his own counsel to make the comparison between the old process and the Lawther process, he does not do so, but compares the Lawther process used by him with five high rolls with the same process when used by him with two sets of pinch rolls. And he nowhere compares the results of the Lawther process with the results of the old or muller-stone process, though he had formerly been using the muller-stones.

Mr. Hamilton says:

"Q. Compare your product with the product by the Lawther process?

"A. Our product as it is now, or has been in the past?

"Q. Whichever way you have made your comparison?

"A. We consider now that our cake is as free from oil as any that is made by hydraulic pressure.

"Q. How was it before you adopted the Lawther rollers?

"A. When we used the single pair or pinch-rollers the yield could be made equally good by diminishing the amount of work the rollers were required to do in a given time; and when we used two sets of pinch-rollers, one above the other, the result in the yield of oil was fully equal to anything we have worked since.

"Q. You have compared the product that you have made with the two sets of pinch-rollers with that you have made with the set of Lawther rollers?

"A. Yes, sir.

"Q. And you state your cake was as free from oil, that the yield of oil was as great by the use of the two sets of pinch-rollers as by the set of Lawther rollers you are using?

"A. Quite as good; there was no essential difference. Sometimes, from the manner of working, a slight difference in the product will arise under any method of manufacture, from differences in the quality of the seed, and from differences in the working, the process of working, the application of too much heat or too much moisture. It is a matter of great importance that the operator shall be a man of experience and judgment, and capable of breaking just the quantity of seed that is to be fed, of moisture that is to be used, of heat that is to be applied.

"Q. Did you hear the testimony of witnesses for the complainant as to the amount of saving produced by the Lawther process?

"A. I did.

"Q. So far as your knowledge goes, state whether there is such saving?

"A. Well, there is a saving in proportion as the seed is evenly crushed, other parts of the operation of extraction being equal. The primal element of success is the thorough crushing of seeds. One set of pinch-rollers would not do it as thoroughly as a stack of five rollers; five rollers would not do it as thoroughly as a stack of four rollers, provided the five rollers were allowed to get out of order, while the four were kept continually in condition.

"Q. Can the seed be as thoroughly crushed and ground under the old process, properly applied, as by the Lawther process?

"A. By the old process you mean two pinch-rollers?

"Q. Yes, sir; or any modification of that style of rollers?

"A. If ground the same number of times in the old pinch-rollers as ground in the Lawther rollers, the result would be fully equal under any circumstances." (Rec., 56, 57.)

But he does not say that grinding with the muller-stones, as in the old process, would or could be equal to the Lawther or new process.

He ceased using the muller-stones when he adopted the steam-spraying device, which was about a year and a half prior to the date of his deposition. And the interval between the adoption of the spraying device and the getting of the five high rolls, was when he used the two sets of pinch-rolls with which he produced the results, "fully equal to anything we have worked since."

"When we adopted the spray we threw aside the mullers as being unnecessary." (Hamilton, Rec., 56.)

"Q. How long have you used this contrivance for spraying water as you have described it?

"A. Something over a year; possibly a year and a half." (Hamilton, Rec., 55.)

"Q. * * * Up to what time did you use the old or horizontal crushing rollers?

"A. I used these until a year since.

"Q. What did you substitute for them then?

"A. The first substitution for a single pair of rollers was the adding of an additional pair of rollers—two pair of pinch-rollers, one above the other. The seed first passed between one set and then the crushed seed was passed to another set.

"Q. What did you use next after that, if anything?

"A. A set of five rollers purchased of the complainant in this action, or of his agent and with his consent, he knowing of the transaction." (Hamilton, Rec., 53.)

It would thus seem that Mr. Hamilton's testimony tends rather to corroborate than to contradict appellant's witnesses.

And it appears, moreover, that the claim of his counsel to the effect that the increased yield of oil is due rather to the superior efficiency of the five high rolls as a crush-

ing agency over the old pinch rolls, is totally without foundation in fact. And this claim is still farther shown to be without any basis by the following from Mr. Lawther's deposition:

"Q. Have you ever known of a mill where your five high roll crusher, Exhibit 1, was used in connection with muller-stones as a substitute for the old-fashioned crusher?

"A. Yes, sir.

"Q. Where and when was that?

"A. Well, they have been so used at Amsterdam, New York, up to within a month, perhaps.

"Q. What was the result upon the yield of oil from that use of the five high rolls with the muller-stones?

"A. I could not tell you what the result was before the change was made, but after the change their work was essentially the same as the other old process mills of the country.

"Q. Is the number of rolls an essential part of your plan, or do you use five just for convenience?

"A. I think it is not an essential part; we use five because it is a convenience.

"Q. Have you ever worked a different number of rolls; and, if so, how many?

"A. Yes, sir; I have; we have worked four in the set.

"Q. How did they work?

"A. Essentially the same as five, with the exception of the difficulty of operating them.

"Q. What difficulty?

"A. It is a mechanical difficulty; we cannot belt them conveniently. An odd number of rolls is best for belting." (Rec., 30, 31.)

It is urged in appellee's brief that the specification of the patent is defective.

In reply to this it is sufficient to say that no such point was made in the testimony, nor upon the argument below, nor was any such defense set up in the answer. The sole

foundation for a discussion here upon this question is a chance remark by the court below about a matter not discussed and not at issue. Had there been any defense of this kind made we would have taken the testimony of persons skilled in the art to whom the specification is solely addressed in this particular and would have thus shown that the specification is sufficiently full, clear and exact for persons skilled in the art to understand the mechanisms and mechanical devices incidentally referred to in the specification. Moreover the machinery necessary to carry out the process was old and well known and needed no description.

With reference to the contention now made that Mr. Lawther is *estopped* from this suit because of neglect to notify appellee at the time of his visit to their mill that the use of the five high rolls without the muller stones would be an infringement, we have to reply: This visit was in September, 1881. (Rec., 20.) The bill of complaint was sworn to November, 1881. (Rec., 3.) Here is no neglect. In the ordinary course of business this is a very short allowance of time. Moreover, it does not appear that Mr. Lawther knew at the time of his visit that appellees had dispensed with or intended to dispense with the muller stones. It now appears from a more careful inspection of the record that they had discarded the muller stones and began infringing about a year before they bought the five high rolls; but it nowhere appears that Mr. Lawther had any knowledge of that fact, and in truth he did not.

In conclusion: It is certainly established by the testimony in the record:

1st. That in the old process the muller stones did grind, triturate or tear the seed.

2d. That Lawther by omitting the muller stones in his new process avoided this comminution or grinding so as to produce a flaky, stratified cake, and thereby a largely increased yield of oil.

While the difference between the old process and the new, or Lawther process may be said, when the two are considered simply in respect to the machinery necessary for practicing them, to consist merely in the omission of the muller stones: still, it must be admitted, when the two processes are considered in respect to the processes themselves, the acts or series of acts done upon the seed, and the results produced thereby, that there is a much wider, broader and more important distinction, which involves generically the principles and modes of operation of the two processes. The one produces an homogeneous, pasty cake, which tends to glue or dam the oil up in the cake, or to prevent it from flowing out, as the witnesses say. While the other produces a flaky, stratified oil cake from which the oil can readily flow. The one grinds and pulverizes the hulls of the seed, the other crushes them under pressure, flattens them out, and preserves them as nearly whole as possible. In the one the ground hulls of the seed when in the press serve to absorb oil, dam it up and prevent its escape from the cake; in the other the flattened hulls when in the cake serve to assist the escape of the oil by producing a flaky, stratified cake full of horizontal seams along which the oil finds an easy passage. The new process is, in short, a practical application to

the art of extracting oil from seeds of the well-known principle or natural law that thin, flat particles will arrange themselves in laminæ at right angles to the direction of pressure, producing a flaky, stratified mass or cake out of which liquids will readily flow.

Since we prepared our brief, filed at the last term, this court has rendered its decision in the case of the *New Process Fermentation Co.* v. *Maus et al.* That case and this case were both under consideration in the court below at the same time by the learned Judge Drummond, who decided that case, and who sat with Judge Dyer in this case.

This case was first heard by Judge Dyer, sitting alone. Afterwards, upon his own motion, the learned judge ordered that the "case be reargued before the full bench." (Rec., 11.) And it was then argued before Judges Drummond and Dyer, Judge Drummond concurring in the opinion. We have always felt that the same error was committed in both cases by the court below, and from the same cause, viz: a misapprehension of the scope and character of process patents. The case of *New Process Fermentation Co.* v. *Maus*, in this court distinctly reaffirms the legal propositions for which we have and do contend.

Respectfully submitted.

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CHICAGO, October 5, 1887.